III. *Revision of the Australian and Tasmanian* Malacodermidae. By Arthur M. Lea, F.E.S., Government Entomologist, Tasmania.

[Read October 7th, 1908.]

Plates II—VI.

The Australian and Tasmanian *Malacodermidae* have been comparatively neglected; in Masters' Catalogue only 114 species* were recorded; since the Catalogue 147† have been recorded as new, 3 were overlooked, and I am now able to add 137 more. Excluding known synonyms and varieties the total now recorded is 363 species.

The reasons for the neglect are not far to seek; the species, although in life often of graceful form and of beautiful colours, after death frequently become badly distorted (especially when pinned) and discoloured; nor can they afterwards be properly set out. Most of the species are small, and the colours of many are exactly similar to those of other species, from which, however, they are distinguished by strongly defined structural characters. ‡

In many species of *Heleogaster* the males have often almost quite identical colours, but are easily distinguished by the sculpture of the head. In *Hypattalus* many similarly coloured species are to be distinguished by the front femora of the male, or the hind tibiae of the female. In the *Lycides* I have given two small special tables of species, which are separated by profound differences of sculpture, and yet have a strong outward resemblance. Owing also to the contraction which almost invariably takes place, the shape of specimens of the same species often appears very different. §

A few of the species are very variable, but perhaps these

* Excluding the then known synonyms, also a species wrongly referred to the family, another entered twice, and another wrongly recorded as Australian.

† Some of these, however, are here noted as synonyms or varieties.

‡ These, however, are often confined to the males.

§ This is especially the case with the incision of the penultimate segment of the abdomen of the males.

form no larger a percentage of the whole than in other families of equal extent.

The species almost entirely live on flowers or on leaves, and feed on nectar or on other insects; the larvae of but few species are known, but those of the *Lycides* live in rotting wood or underground.

I have to thank the Rev. T. Blackburn for co-types of several of his species; Mr. W. J. Rainbow for co-types of some species, the types of which are in the Australian Museum; but in particular Mr. George Masters for co-types and other specimens from his own and the rich Macleay Museum collections, without which my work would have been greatly hampered.

I have examined the whole of the types and other specimens in the Macleay and Australian Museums, the specimens in the National Museum in the Departments of Agriculture of New South Wales and Tasmania, and in the collections of Messrs. H. J. Carter, C. French, W. W. Froggatt, J. C. Goudie, H. H. D. Griffith,* R. Illidge, Aug. Simson and Taylor. I have also received many specimens from Messrs. Edmund Allen,† A. J. Coates, D. Dumbrell, R. Helms, T. G. Sloane, J. G. Otto Tepper, J. J. Walker, J. C. Wiburd and others. With the localities for the new species I have always given the collectors' names, but I have not considered these necessary for previously described species.

The whole collection dealt with is rich in specimens from Queensland, New South Wales, Tasmania, and South-West Australia; comparatively rich from South Australia and Victoria, and poor from North-West Australia; whilst the Northern Territory and Central Australia are practically unrepresented. When not otherwise specified the types of the new species remain in my own collection.

At the end I have placed a number of species, which it is quite impossible to identify from the published descriptions, or even to satisfactorily place generically.

Two species (*Lampyris marginipennis*, Guér., and *L. striata*, Fab.) have been wrongly recorded from Australia.‡

* Including a fine series sent to him by Mr. F. P. Dodd from North Queensland.

† It was through receiving a remarkable species of *Laius* from this gentleman that I was induced to revise the family.

‡ See notes under *Luciola*.

The sub-families of *Malacodermidae* of the world are thus tabulated by Lacordaire.

I. Antennes insérées sur le front ou à la base du rostre en dessus.
  a. Hanches intermediares distantes . . . . . LYCIDES.
  aa. „ „ contiguës.
    Antennes plus ou moins contiguës . . . . LAMPYRIDES.
    „ „ „ distantes . . . . TELEPHORIDES.
II. Antennes insérées latéralement au devant des yeux.
  Epistome indistinct . . . . . DRILIDES.*
  „ distinct . . . . . MELYRIDES.†

But the Australian and Tasmanian sub-families and genera ‡ may be tabulated as follows:—

A. Body with exsertile vesicles (*Malachiides*).
  a. Elytra covering the abdomen.
    b. Antennae of apparently ten joints. . . *Laius.*
    bb. Antennae with eleven distinct joints . *Hypattalus.*
  aa. Elytra not covering the abdomen.
    c. Antennae flabellate in the male . . . *Balanophorus.*
    cc. Antennae not flabellate in the male.
      d. Head usually more or less convex in male . . . . . *Carphurus.*
      dd. Head usually largely excavated in male.
        e. Prothorax greatly constricted at base (eyes green) . . . . . *Neocarphurus.*
        ee. Prothorax less constricted at base . *Helcogaster.*
AA. Body without exsertile vesicles.
  B. Abdomen partly phosphorescent in life (*Lampyrides*).
    f. Head covered . . . . . *Atyphella.*
    ff. Head uncovered . . . . . *Luciola.*
  BB. Abdomen not phosphorescent in life.
    C. Prothorax usually divided into distinct areas, the elytra usually cancellate-punctate (*Lycides*).
      g. Head uncovered . . . . . *Calochromus.*

---

* Not represented in Australia.
† The *Melyrides* of Lacordaire include the *Malachiides.*
‡ Except *Heliotis* which is unknown to me.

gg. Head more or less covered.	
h. Prothorax without distinct areolets .	*Dumbrellia.*
hh. Prothorax with distinct areolets.	
i. Substructural costa trifurcate at base	*Trichalus.*
ii. Subsutural costa parallel with suture	*Metriorrhynchus.*
CC. Prothorax not as in *Lycides.*	
D. Antennae inserted between and in front of the eyes (*Telephorides*).	
j. Prothorax always strongly transverse, antennae frequently distorted in male	*Heteromastix.*
ij. Prothorax seldom strongly transverse, antennae never distorted .	*Telephorus.* *Selenurus.*
DD. Antennae inserted at the sides or straight in front of the eyes (*Melyrides*)	*Dasytes.*

The close resemblance that several species of *Oedemeridae* bear to certain members of this family is very remarkable, and in the company of which they are usually found. The most common and striking instance of this is *Pseudolychus haemorrhoidalis*, Fab., which is usually found in the company of *Metriorrhynchus rufipennis*, Fab., which it strongly resembles, and like that species it varies from a form having the entire elytra reddish, to one in which only their tips are reddish. *P. marginatus*, Guér., *haemopterus*, Guér., and *wallacei*, n. sp.,* also resemble various species of *Lycides.*

Subfamily LYCIDES.

Genus METRIORRHYNCHUS, Guér., Voy. Coq. 1838, p. 72, Lacord., Gen. Coleop. IV. p. 297 ; Waterhouse, Trans. Ent. Soc. Lond. 1878, p. 101; Ill. Typ. Col., p. 47; Blackb., Transactions, Royal Society, South Australia,† 1894, p. 208; Lea, Proceedings, Linnean Society, New South Wales,‡ 1898, p. 556.

Porrostoma, Cast., Silb. Rev. Ent. IV, p. 26; Lacord., Gen. Coleop. IV, p. 296; Wat., Trans. Ent. Soc. Lond. 1877, p. 73; Ill. Typ. Col., p. 43.

* Described below.
† Abbreviated throughout, T. R. S., S.A.
‡ Abbreviated throughout, P. L. S., N.S.W.

Synchonnus, Wat., Ill. Typ. Col., p. 59.
Stadenus, Wat., *l. c.*, p. 61.
Achras, Wat., *l. c.*, p. 61.

This is the genus most numerously represented in Australia and Tasmania of all the Malacodermes; it has as well a wide distribution in New Guinea and the Malay Archipelago. In consequence of the great diversity which exists in parts generally quite constant, it has been split up into a number of genera, but I think few of these will eventually stand.

The most remarkable variation occurs in the rostrum, in some species (*rhipidius*, *nigripes*, etc.) it is long, rather thin and shining; these were regarded by Mr. Waterhouse as belonging to a distinct genus—*Porrostoma*. In others (*rufipennis*, *fallax*, etc.) it is either entirely absent, or very short (wider than long), these he considered as belonging to *Metriorrhynchus*. Were there no intermediate forms undoubtedly two genera could be maintained, but there are so many of these that it is quite impossible to define a boundary between the two sections.

Great variation also occurs in the prothorax and antennae. The former is usually divided into 7 distinct areolets, but in a few species these are not very sharply defined. Others have but 5 or 3 areolets (all of these have the rostrum either very short or absent), and for these also new genera were proposed. One section has the prothorax 3-areolate, and the sutural costa of the elytra trifurcate at base; for this section the genus *Trichalus* was proposed, and is here regarded as distinct, but merely for the sake of convenience.

The antennae vary from being strongly flabellate in the male to but slightly serrate in both sexes. The second joint is usually very small and partially concealed.

Lycus australis, Boisd., and *ochraceus*, Dalm., probably belong to this genus, but I think it best at present to treat them as being of doubtful position.*

The following species are unknown to me:—

Clientulus, Wat., *femoralis*, Macl., and *vittatus*, Blackb. These are commented upon at length hereafter.

* See list of doubtful species at end.

Prothorax five-areolate.

Cliens, Blackb. Apparently close to *clientulus*.

Prothorax seven-areolate.

A. Elytral punctures in single series.

Miniaticollis, Macl. A species with very unusual colours, its rostrum is short.

Paradoxus, Blackb. Apparently close to *cancellatus*.

B. Elytral punctures in double series.

Brevirostris, Wat. Coloured as *rhipidius*, but with the rostrum intermediate in length between that species and *rufipennis*. It would be dangerous to identify any species as *brevirostris* (except from N.W. Australia) without further information than that contained in the descriptions.*

Scalaris, Wat. Apparently very close to *haemorrhoidalis*; the description in Ill. Typ. Col. is the best.

Centralis, Macl. The rostrum in this species is very short.

Foliatus, Macl., and *hirtipes*, Macl. Two species having very peculiar prothoracic margins; they should be very distinct—in *foliatus* the rostrum is long, in *hirtipes* it is of medium length.

Fumosus, Macl. Apparently like a small dingy specimen of *Trichalus ater*.

Monticola, Blackb. Apparently coloured much as *eremita*, but smaller and with differently sculptured elytra; seems close also to *cocnosus* but with a longer rostrum and elytra somewhat differently coloured. It should perhaps be regarded as belonging to the group having the elytral punctures in single series.

Occidentalis, Blackb. Evidently close to *rhipidius*, but with part of the elytra black, although not as in *disconiger*.

Mentitor, Blackb. Apparently close to *eremita* and *ordinarius*, but the former has the suture black and the latter the rostrum long. The others † may be tabulated as follows :—

* The original one is short enough, but that in Ill. Typ. Col. is still shorter.

† *Opacus* and *tibialis* were described after the table was drawn up, but in it *opacus* would have been placed next to *atratus*, and *tibialis* would have been given a distinct section next to C.

A. Apterous . . . . . *apterus*, n. sp.
AA. Winged.
B. Elytral punctures in single series *.
a. Prothorax 7-aerolate.
b. Prothorax pallid.
c. Antennae of male flabellate . *testaceicollis*, Macl.
cc. Antennae of male not flabellate . . . . . *diminutivus*, n. sp.
bb. Prothorax partly black . . . *coenosus*, Lea.
bbb. Prothorax entirely black.
d. Elytra of uniform colour.
e. Elytra red . . . . . *uniseriatus*, n. sp.
ee. Elytra black . . . . . *insignipennis*, Blackb.
dd. Elytra not of uniform colour.
f. Elytral margins pallid throughout . . . . . *cancellatus*, n. sp.
ff. Elytral margins not pallid throughout.
g. Antennae of male flabellate . . . . . *ramosus*, n. sp.
gg. Antennae of male not flabellate . . . . . *meyricki*, Blackb.
aa. Prothorax not 7-areolate.
h. Prothorax pallid . . . . . *basiflavus*, n. sp.
hh. Prothorax black.
i. Third joint of antennae much shorter than 4th . . . . . *heterodoxus*, n. sp.
ii. Third joint no shorter than 4th.
j. Elytra shining . . . . . *constricticollis*, n. sp.
jj. Elytra opaque . . . . . *simplicicornis*, n. sp.
BB. Elytral punctures in double series.
C. Prothorax not 7-areolate.
k. Prothorax entirely pallid.
l. Elytra entirely dark . . . . *atricornis*, n. sp.
ll. Elytra pallid at base . . . *ampliatus*, Macl.
kk. Prothorax partly pallid.
m. Dark part of elytra apical . *cinctus*, Wath.
mm. Dark part not apical . . . *limbatus*, Wath.
kkk. Prothorax entirely black.
n. Apex of elytra pallid.
o. Dark portion of elytra black. *inquinulus*, Wat.

* Sometimes, however, they are in irregular double series towards the base and apex.

oo. Dark portion infuscate . .	*obscuripennis*, n. sp
nn. Apex of elytra black.	
p. Black apical portion not connected with base . . .	*dichrous*, Wat.
pp. Black portion connected with base.	
q. Elytra shining	*triareolatus*, n. sp.
qq. Elytra opaque	*nigrovittatus*, n. sp.
CC. Prothorax 7-areolate.	
D. Rostrum long.	
r. Entirely black	*moerens*, n. sp.
rr. Not entirely black.	
s. Prothorax black.	
t. Elytra uniformly reddish	*rhipidius*, W. S. Macl
tt. Elytra partly black . .	*disconiger*, n. sp.
ss. Prothorax partly black.*	
u. Elytra uniformly reddish	*lateralis*, Redt.
uu. Elytra partly dark.	
v. More than half of suture dark	*ordinarius*, n. sp.
vv. Less than half of suture dark	*variipennis*, n. sp.
ss. Prothorax pallid.	
w. Elytra black at apex.	
x. Black portion confined to extreme apex . .	*serraticornis*, Macl.
xx. Black portion at least one-eighth of the length of elytra.	
y. Metasternum black .	*abdominalis*, Wat
yy. Metasternum pallid.	
z. Abdomen dark . .	*apicalis*, Wat.
zz. Abdomen partly pallid	*melaspis*, Bourg.
ww. Elytra entirely reddish	*nigripes*, Macl. *textilis*, Wat. *uniformis*, Wat.
DD. Rostrum of moderate length.	
a. Prothorax entirely pallid . .	*rufirostris*, n. sp.
aa. Prothorax dark in middle .	*irregularis*, Wat.

* *Nigripes* is not included here, as in that species the dark portion of the prothorax is sometimes absent, and even when present appears to be of the nature of a stain only.

DDD. Rostrum short.
E. Prothorax black.
b. Elytra entirely black . . *atratus*, Fab.
bb. Elytra partly or entirely reddish.
c. Apex of elytra black.
d. Reddish portion of elytra unusually dark . *batesi*, n. sp.
dd. Reddish portion normal . . . . . *togatus*, Wat. / *brisbanensis*, n. sp.
cc. Apex of elytra reddish.
e. Elytra red only at apex and shoulders . . . *simsoni*, n. sp.
ee. Elytral markings very variable but never as in *simsoni* . . . . *rufipennis*, Fab.
EE. Prothorax entirely pallid.
f. Elytra entirely pallid.
g. Antennae of male flabellate . . . . . *miniatus*, Macl.
gg. Antennae of male serrate *elongatus*, Macl.
ff. Elytra mostly dark.
h. Basal fourth of elytra pallid . . . . . *longicornis*, Macl.
hh. Extreme base only pallid *costicollis*, n. sp.
fff. Elytra mostly pale.
i. More than one-third of apex dark . . . . . *posticalis*, Macl.
ii. Less than one-sixth of apex dark.
j. Antennae of male flabellate . . . . . *gracilis*, n. sp.
jj. Antennae of male not flabellate . . . . *fallax*, Wat.
EEE. Prothorax partly pallid.
F. Prothorax longer than wide *militaris*, n, sp.
FF. Prothorax wider than long.
G. Dark parts of elytra do not always include costae *fuscolineatus*, Wat.
GG. Dark parts include costae.
H. Size comparatively small *marginipennis*, Lea.
HH. Size comparatively large . . . . . *eremita*, Blackb.

Metriorrhynchus atratus, Fab., (*Lycus*) Syst., El. II, p. 113; Lacord., Gen. Coleop. IV, p. 297, Nota 2; Boisd., Voy. Astr., p. 120 ; Blackb., T.R.S., S.A., 1900, p. 52. (*Fig.* 15.)

Mr. Waterhouse thought it possible* that *Lycus atratus* was a variety of his *hæmorrhoidalis*, and that both were varieties of *rufipennis*. There are at least three entirely black species occurring in Tasmania, practically any one of which might be *atratus*; but Blackburn has formerly described a species from Tasmania as the *atratus* of Fabricius, and unless it can be proved to be the contrary by examination of the type (if such is still extant), I think the species described by him as *atratus* should be accepted as such. This species, of which only the female was known to Blackburn, is rather small and narrow, with a very short rostrum; 3rd–9th joints of antennæ about as long as wide (with the produced portions much less than in the male of *rufipennis*), and the reticulation of the elytra rather less clearly defined than usual. Of the other black Tasmanian species *insignipennis* can be readily distinguished by the elytral punctures being in single instead of in double rows; whilst *mœrens* has the rostrum long and shining.

Hab. Tasmania (widely distributed).

Metriorrhynchus rufipennis, Fab. (*Lycus*), Syst. El. II, p. 114; Er., Wiegm. Arch., 1842, p. 145 ; Blanch., Voy. Pole Sud. IV, p. 75, Pl. V, fig. 12; Germ. (*Porrostoma*), Linn. Ent. III, p. 182; Boisd., Voy. Astr., p. 117; Wat., Trans. Ent. Soc. Lond., 1877, p. 74, Pl. I, figs. 6–12; Ill. Typ. Col., p. 48, Pl. XII, fig. 6; Blackb., T. R. S., S.A., 1900, p. 56.

nigrirostris, W. S. Macl., Dej. Cat., 3 ed. p. 111.

salebrosus, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 79, Pl. II, figs. 61–64; Ill. Typ. Col., p. 48, Pl. XII, fig. 6.

var. *marginatus*, Er., Wiegm. Arch., 1842, p. 145; Wat., Trans. Ent. Soc. Lond., 1877, p. 85; Blackb., T. R. S., S.A., 1900, p. 56.

goryi, Le G. (*Lycus*), Rev. Zool., 1844, p. 222; Wat., Trans. Ent. Soc. Lond., 1877, p. 85; Masters (*Calopteron*), Cat. Sp. No. 3365.

* Ill. Typ. Col., p. 49.

var. *haemorrhoidalis*, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 79, Pl. II, figs. 61[a]–64[a]; Ill. Typ. Col., p. 49.

var. *plagiatus*, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 80, Pl. II, figs. 65–68; Ill. Typ. Col., p. 49, Pl. XII, fig. 8.

var. *lugubris*, Wat., Trans. Ent. Soc. Lond., 1877, p. 80, Pl. II, figs. 69–72; Ill. Typ. Col., p. 50, Pl. XII, fig. 7.

var. *miles*, Blackb., T. R. S., S.A., 1900, p. 54.

The synonymy is very complicated* and is rendered more difficult of elucidation owing to the brevity of some of the older descriptions.

Mr. Waterhouse in his first monograph, very briefly describes as *rufipennis* a species which I believe to be nothing but a small form of *rhipidius*, and throughout this work he consistently refers to this form as *rufipennis*; subsequently, however, he regarded his *salebrosus* as *rufipennis*.†

It seems to me that the description of *miles* was drawn up from a female, differing to but a slight extent from the normal *salebrosus*, and I certainly cannot regard it as worthy of a *specific* name.‡

I do not think that *brevirostris* can have any connection with this species, as the figure of the antenna is different, and the rostrum (despite the name) is figured (Plate I, fig. 14) as being longer than broad, and is so described (at least it is said to be "scarcely longer than broad.")

There is a specimen from the Leura Falls in Mr. Froggatt's collection, which has the antennae distinctly *thicker* than in the normal form; although otherwise much the same.

* I believe the above references will have to be still further added to.

† He remarks in Ill. Typ. Col., p. 49, "It is difficult to decide whether *Lycus rufipennis*, F., should be considered identical with *P. erythropterum*, Er. (*rhipidius*), or with *P. salebrosum*, W. I have here adopted Erichson's view, by which the latter becomes synonymous with the Fabrician species. I here also regard the species with a short rostrum (*salebrosus*) as the *rufipennis* of Fabricius.

‡ I have, at any rate, a female from Victoria which agrees very well indeed with Blackburn's description, and it appears to me to be nothing but a very slight variety of *salebrosus*.

The species is certainly the most variable of the subfamily as regards its elytral markings, although the sculpture is remarkably constant. There is, however, one very remarkable variation; this occurs in the carina dividing the two apical central areolets of the prothorax. In about half of the specimens this is entire, as in other species of the genus, but in the others (more frequently in the females than in the males) it is longitudinally divided so as to appear as two carinae; as a consequence the median areolet, in these specimens, appears to be connected by a very narrow groove with the apex. I can be certain that I am not here confusing two allied species, having taken numerous specimens *in cop.*, and in numerous pairs the sexes differ in this respect.

In size it varies from 6 to 10½ mm.

The typical form and the variety *haemorrhoidalis* * are very abundant on the undergrowth in heavily timbered parts of Tasmania.

I have seen an occasional specimen in which the elytra were so indistinctly tipped with red, that unless closely looked for it would escape observation; but usually in *haemorrhoidalis* the apex is very distinctly tipped with red; in a rare form the red is continued along the sides to the base and up the suture for a short distance (*marginatus*, *goryi*) and in another to the base both at suture and sides (*lugubris*); in several specimens the black occupies an elongated somewhat ⋀ (compo reversed ⋁)-shaped space (*plagiatus*)†; in one specimen from Mount Wellington the disc of each elytron is infuscate only (an unnamed variety).

It is to be noted that in this (as in other species of the genus) the prothorax does not always contract in the same way in different specimens; usually it is quite strongly

* I have examined a long series of specimens and cannot support Mr. Blackburn in his contention that *haemorrhoidalis* and *rufipennis* (*salebrosus*) are really distinct, though closely allied species, and which can be distinguished by "the produced piece of each joint beginning with the sixth"; in the sexes of course there is considerable difference in the antennae, but there is just as much individual variation in the males of one form as there is between the males of the two forms; moreover, a slight difference in position from which the antennae are viewed makes a considerable difference in their appearance.

† Mr. Waterhouse suspected that this form was only a variety of *haemorrhoidalis*.

constricted in the middle, but an occasional specimen of both the commoner forms may be obtained in which the outline is almost continuous; this naturally affects the apparent width of the basal (and to a less extent of the apical) areolets.

In connection with, although not of, this species it is curious to note that an almost parallel variation in colour occurs with one of the *Oedemeridae* (*Pseudolychus haemorrhoidalis*, Fab.) frequently found in its company.

Hab. TASMANIA: Hobart, Mount Wellington, Huon River, Ulverstone, George's Bay, Sheffield; VICTORIA: Monbulk, Dividing Range; N.S. WALES: Forest Reefs, Sydney, Blue Mountains, Mount Brown, Merimbula, Como, Jenolan.

METRIORRHYNCHUS RHIPIDIUS, W. S. Macl. (*Lycus*), King's Survey, II, 1827, App. p. 442; Lacord., Gen. Col., IV, p. 297, note 1; Waterhouse, Trans. Ent. Soc. Lond., 1877, p. 84.

septemcavus, W. S. Macl. (*Lycus*), King's Survey, II, 1827, App. p. 442; Wat., Trans. Ent. Soc. Lond., 1877, p. 84.

erythropterum, Er. (*Porrostoma*), Wiegm. Arch., 1842, p. 144; Wat., Trans. Ent. Soc. Lond., 1877, p. 74, Pl. I, figs. 1–5.

gigas, Blackb., P. L. S., N.S.W., 1891, p. 524.

flagellatus, Blackb., T. R. S., S.A., 1900, p. 53. (*Figs.* 16, 17, 18, 19, 20.)

This species is the most widely distributed and abundant of all the Australian *Lycides*, and may be taken from early to late summer. It is frequently to be seen on *Leptospermum*, *Kunzea*, *Eucalyptus* and other blossoms in countless thousands.

Mr. Blackburn appeared to regard his *gigas* as distinct, largely on account of its size, but I have specimens from New South Wales and Queensland, as well as from Western Australia, which agree not only in size * but in all other details mentioned by him for *gigas*, and which I can only regard as belonging to *rhipidius*. So far as his statements as to the shape of the flabella in Waterhouse's figure of

* He gives the length of *gigas* as 7–9 lines, whilst the type of *rhipidius* is 19 mm. in length, and one before me measures 21 mm.

*rufipennis** are concerned, it is to be borne in mind that the artist in drawing the antenna of an insect, part of which is compressed in one direction, and part in almost an opposite direction, must necessarily draw one portion from the side, when it appears totally different to what it does from in front; thus if the antennae of this species were drawn from one direction they would appear almost as rows of overlapping plates.

Neither can I regard *flagellatus*† as a valid species. I have numerous specimens differing in width (this difference is often more apparent than real, owing to the irregular contraction, liable to occur in this, as in many other genera of *Malacodermidae*). If the widened apical portions of the rami are examined, it will be noticed that the serrations are often due to hairs or setae, although frequently distinct in themselves, moreover are nearly always different in the different joints, are distinct in some specimens and indistinct or not at all traceable in others; in the type of *flagellatus* they are apparently as indistinct as in many specimens from Tasmania.

I have examined the type of *rhipidius*, which bears a label in the late W. S. Macleay's handwriting "Lycus rhipidion Capt. King Australasia," also the type‡ of *septemcavus*, bearing in similar writing "Lycus 7-cavus Capt. King Australasia." The two specimens are certainly sexes of one species, as suspected by several entomologists (see figures 16 and 17 for antennae of these specimens).

The type of *rhipidius* is a very large male (by no means of uncommon size for Queensland, however), with the prothorax comparatively small, rostrum long and thin, and elytral punctures large and transversely oblong. I have figured (fig. 16) one of its antennae as seen from the side; and some of the rami (A, B, C, D and E).

I have also figured (fig. 18) the antenna of a normal male of *erythropterus*, showing the form most abundant in Tasmania (fig. 19 is that of the corresponding female);

* See elsewhere as to the various species regarded and figured by Waterhouse as *rufipennis*.

† Mr. Blackburn apparently accepted Waterhouse's surmise (in T.E.S., 1877, p. 84) as to *rhipidius* and *septemcavus* being identical with *rufipenne*, as he does not mention either; although certainly the original descriptions are far from satisfactory.

‡ The antennae are damaged in this specimen, only nine joints being left on one side and fewer on the other.

it will be noticed that the true third joint is very different to what it is in fig. 16 (other joints are also different), but I have seen so many intermediate forms,* all differing to a slight extent from each other, and forming distinct links between these two forms, that to regard the two figures as distinct would make it necessary to regard hosts of others as distinct. In several specimens before me the true third joint is even shorter than in fig. 16, with its ramus still longer; whilst I have seen others in which the third joint is still longer than in fig. 18 with its ramus still shorter.

The rami are very variable, especially when long, and are seldom, if ever, alike in both antennae. When the rami are shorter, they are often simple or almost simple, but frequently are terminated by several minute projections, which often appear more distinct than they really are, owing to being supplied with setose hairs.

The prothorax in the largest males often appears disproportionately small when compared with that of smaller specimens; in the type of *rhipidius* for instance (which measures 19 mm. in length) it is actually no larger than in one measuring but 13 mm. in length. At its base it is not much wider than across the middle of one elytron, whilst in many others it is almost as wide as the width of both elytra across the middle.

The elytra also vary in their proportionate width to length.

In a pair from Forest Reefs, pairs from Sydney and Albany and pairs from Tasmania (all taken *in cop.*), the punctures across the middle of the elytra in the male are not much wider than long, and with more or less rounded corners; in the females they are strongly transverse, more sharply defined and much more regular. But the punctures appear to be always much more transverse and regular in the larger than in the smaller specimens of both sexes. The male from Forest Reefs has the antennae much as in fig. 18, but its female has them much shorter with the joints considerably wider than usual in the female.†

The second and sixth elytral costae (counting the smaller ones as true costae) are especially liable to variation in

* I have critically examined some hundreds of specimens from many parts of Australia, and have seen many thousands.

† It is the only female I have seen in which the 4th–10th joints are all distinctly transverse.

thickness towards the base, but all are subject to variation. In many specimens the only costa distinctly elevated above the others beyond the middle is the true fourth; frequently the smaller costae (first, third and fifth) become very irregular and tend to disappear towards the apex, so that sometimes two rows of punctures become conjoined into one irregular row; two costae also sometimes become conjoined and narrowly connected with the apex; but towards the apex all the costae become irregular, and they are seldom exactly the same on both elytra.

The colour of the elytra varies slightly in living specimens, and is subject to alteration after death; the claws (or at least their tips) are invariably reddish.

The size varies from 9 to 21 mm., the male usually being smaller than the female, but the largest specimen before me is a male.

The brief description here given will enable this species to be distinguished from all others known to me.

Black; elytra reddish.

Rostrum long and thin. Antennae pectinate in the male, serrate in the female, 3rd joint distinctly longer than the 4th. Prothorax 7-areolate. Elytra quadricostate, the interstices each with two double rows of punctures.

This will include hosts of forms all differing to a certain extent in the lengths and shapes of the antennal joints, in the shapes and comparative lengths of the rami, in the proportional size and width of the prothorax to the elytra, in the size and shape of the elytral punctures, in the comparative size and terminations of the elytral costae, and in the different shades of colour.

Hab. QUEENSLAND: Brisbane, Gayndah, Southport, Inglewood, Darling Downs; N.S. WALES: Tweed, Richmond, Clarence and Hunter Rivers, Forest Reefs, Sydney, Ben Lomond, Mount Kosciusko, Jenolan, Blue Mountains, Monaro, Yass, Junee, Tamworth, Arundale, Condobolin, Queanbeyan, Goulburn, Kenthurst, Chatswood, Bathurst, Wentworth Falls; VICTORIA: Melbourne, Monbulk, S. Wandin, Gisborne, Launching Place, Grampians, Emerald; TASMANIA: Hobart, Mount Wellington (including the summit), Huon River, Launceston, Burnie, Woolnorth; S. AUSTRALIA: Mount Lofty, Adelaide, Murray Bridge; W. AUSTRALIA: Albany, Swan River, Pinjarrah.

METRIORRHYNCHUS FEMORALIS, Macl., Trans. Ent. Soc., N.S.W., II, p. 262.

Mr. Rainbow informs me that the rostrum (not mentioned in the original description) of this species is as long as in *rhipidius* (a specimen of which I sent to the Australian Museum for comparison), and that the elytra of the male (as implied in the description) are unicolorous.

Hab. QUEENSLAND: Gayndah.

METRIORRHYNCHUS NIGRIPES, Macl., *l. c.*, p. 262.

Porrostoma elegans, Wat., Trans. Ent. Soc. Lond., 1877, p. 75, Pl. I, figs. 23–27; Ill. Typ. Col., p. 44, Pl. XI, figs. 6–6*a*.

The original description of this species is simply a comparison with the preceding one and is very unsatisfactory; but there are two co-types before me and these agree exactly with Waterhouse's description of *elegans*.

The species is variable to a slight extent, the dark markings in the three posterior areolets being variable in size and intensity, and in one specimen before me are entirely absent; the scutellum is occasionally entirely black, but usually its sides are reddish.

Hab. QUEENSLAND: Gayndah, Brisbane, Rockhampton, MacKay; N. S. WALES: Tamworth, Clarence River, Rope's Creek; VICTORIA: Wodonga.

METRIORRHYNCHUS AMPLIATUS, Macl. (*Xylobanus*), P. L. S., N.S.W., 1887, p. 233. (*Fig.* 80.)

The elytra of the type were described as being of the "usual quadricostate sculpture" and the prothorax as having "the discal areolet narrow and extending to the apex." These remarks are quoted, as on examination of the Macleay Museum types I noticed that Macleay had confused two species under the name *ampliatus*. Of these species one specimen agrees with the quoted remarks; its elytra have the usual four strong costae which on the basal two-thirds separate two double rows of punctures, towards the apex, however, the punctures become irregular. The other specimen has the elytral punctures in single series and the median areolet of the prothorax connected with the apex by a carina, but in colour it exactly agrees with the type; this species appears to be the more common

of the two, and I have named it *basiflavus*. Macleay did not mention the scutellum but in *ampliatus* it is flavous, a character which readily distinguishes it from *longicornis* (which otherwise is almost identical in colour). The colour of its upper surface is also almost identical with *Trichalus semiatratus*. As an instance of how deceptive colours are in this sub-family, a short table of these four species, which have the prothorax and base of elytra of almost identical colour, is here given:—

Subsutural costa trifurcate near base . .	*T. semiatratus*, n. sp.
Subsutural costa simple.	
Elytral punctures in single series . . .	*M. basiflavus*, n. sp.
Elytral punctures in double series.	
Prothorax 7-areolate	*M. longicornis*, Macl.
Prothorax 5-areolate	*M. ampliatus*, Macl.

In *ampliatus* the five areolets are not as in *Xylobanus costifer* and *gratiosus* (the only species figured by Waterhouse * as having the prothorax 5-areolate), but there is a costa extending from the central areolet towards the margin on each side, so as to divide the four outer areolets into almost equal sizes; these all being slightly transverse (in *costifer* and *gratiosus* there are two small ones in front and two much larger ones behind). The median areolet is much as in many species of *Trichalus*, but as the sutural costa is simple it cannot be referred to that sub-genus, in which there is already an *ampliatus*. Waterhouse would probably have referred it to *Synchonnus*.

One specimen before me differs from the type in being much smaller ($2\frac{1}{2}$ lines only), but I can discover no other distinguishing feature.

Hab. Queensland: Barron River, Cairns.

Metriorrhynchus testaceicollis, Macl. (*Cladophorus*), *l. c.*, p. 234. (*Figs.* 21, 22.)

Under this name also Macleay had confused two species. The specimens that were standing under that name in the Macleay Museum are almost identical in colour, one being slightly more, the other slightly less than three lines in length. Both specimens have also the "antennae with the branches from joints 3 to 10 very much longer than the joints themselves"; with the rostrum practically

* Ill. Typ. Col., Plate IX.

absent; both also have the base of the elytra not entirely black. But Macleay says "the middle one (of the prothoracic areolets) confined to the basal half, the others not very perfectly defined. The elytra are strongly quadricostate and punctured." The only specimen these remarks refer to has the four front areolets feebly defined and the elytra with strong punctures in single series, which, however, become confused towards the apex.* The other specimen has the prothoracic areolets very well defined, the elytral costae unusually feeble and separating two distinct rows of punctures; the species is here described under the name of *costicollis*.

The female of *testaceicollis* † differs from the male in having the prothorax more transverse with the antennae shorter, stouter and strongly serrate only. It agrees very well (except that the specimens before me are three instead of four lines in length) with the description of *Xylobanus miniaticollis*, but I do not think that the types of that species can have been females of *testaceicollis*, otherwise I should probably have noticed it when examining the types.

The species tabulated below are practically identical in colour:—

Subsutural costa trifurcate near base. .	*T. atripennis*, Macl.
Subsutural costa simple.	
Elytral punctures in single series.	
Antennae of male strongly branched.	*M. testaceicollis*, Macl.
Antennae of male not branched .	*M. diminutivus*, n. sp.
Elytral punctures in double series.	
Prothorax 7-areolate. . . .	*M. costicollis*, n. sp.
Prothorax 3-areolate. . . .	*M. atricornis*, n. sp.

Hab. QUEENSLAND: Cairns.

METRIORRHYNCHUS POSTICALIS, Macl. (*Cladophorus*), *l. c.*, p. 234, fig. 81.

In the type the scutellum is pallid as well as the prothorax and portion of the elytra.

Hab. QUEENSLAND: Cairns, Barron River.

* On the elytra of several other specimens, as well as on the type, double rows can be traced towards the apex and to a less extent near the base.

† The specimens here described were amongst the Macleay Museum duplicates.

Metriorrhynchus miniatus, Macl. (*Cladophorus*), *l. c.*, p. 235.

The female differs from the male (the only sex described by Macleay) in having the antennae strongly serrated, instead of branched. In both sexes the rostrum is so short as to be practically absent and the scutellum is of the same colour as the prothorax and elytra.

Hab. Queensland: Barron River, Kuranda.

Metriorrhynchus elongatus, Macl., *l. c.*, p. 229.

In this species the elytral punctures are much closer together than usual, although the longitudinal costae separating the rows are of normal distance apart.

Hab. Queensland: Barron River.

Metriorrhynchus longicornis, Macl. (*Xylobanus*), *l. c.*, p. 232.

Two specimens from the Macleay Museum belong to this species, but differ from the types in having the antennae shorter and scutellum entirely dark. They are however, females, the types probably being males.

Hab. Queensland: Russell River, Cairns.

Metriorrhynchus abdominalis, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 75, Pl. I, figs. 19–22; Ill. Typ. Col., p. 44, Pl. XI, fig. 10.

There are three female specimens before me* which with some hesitation I refer to this species. In all of them the rostrum is diluted in places with red; two of them have a small medio-basal black spot on the prothorax,† and the scutellum black (not mentioned by Waterhouse but black in the figure); the other specimen has the prothorax and scutellum both entirely pallid. In all three the middle part of the abdomen is dark, but the dark portion is variable in extent and nowhere encroaches on the sides or apex.

Hab. Queensland: Brisbane, Mackay. Victoria: Wodonga.

* From Brisbane and Bowen; the type was from "East Australia."

† At the extreme base only instead of as figured.

METRIORRHYNCHUS TEXTILIS, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 77, Pl. I, figs. 32–35; Ill. Typ. Col., p. 46, Pl. XI, figs. 9–9*a*.

A female specimen from Brisbane (the type was from Moreton Bay,* and also a female) agrees well with the figures and size of this species and with the description except as to the antennae. These are described as "Long and broad not diminishing towards the apex; each joint with a carina parallel with the lower margin." In the Brisbane specimen I cannot see any carinae and the terminal joints are distinctly narrower (although not by much) than the median joints; in the figure they are also so drawn. This specimen also is the only one I have seen having the disc of the prothorax and the scutellum entirely unclouded.

Hab. QUEENSLAND: Moreton Bay.

METRIORRHYNCHUS RUSSATUS, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 77, Pl. I, figs. 36–38; Ill. Typ. Coll., p. 46, Pl. XI, fig. 11.

? *serraticornis*, Macl., P. L. S., N.S.W., 1887, p. 230.

Two specimens in Mr. Simson's collection certainly belong to *serraticornis*. I think also that they belong to *russatus*, in which case Macleay's (as the later) name must fall. In the description of *russatus* the elytra are stated to be "*flavorufis* (*apice excepto*)"; for *serraticornis* Macleay says "the extreme apex black." In the specimens before me only the thickened apical parts are black; the medio basal prothoracic areolet is infuscate in front in both, and in some specimens might easily appear black.

Hab. QUEENSLAND: Bowen, Mossman River.

METRIORRHYNCHUS TOGATUS, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 78, Pl. I, figs. 49–52; Ill. Typ. Col., p. 47, Pl. XII, fig. 2; Lea, P. L. S., N.S.W., 1898, p. 559.

I have three males of what I presume to be this species as they agree with Waterhouse's descriptions and figures; but they differ in being smaller (the largest specimen only four as against five lines in length).

Hab. N.W. AUSTRALIA; W. AUSTRALIA: Albany, Mount Barker.

* Practically the same locality.

Metriorrhynchus cinctus, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 80, Pl. II, figs. 73–77; Ill. Typ. Col., p. 58, Pl. XIV, figs. 9–10.

capucinus, Lea, P. L. S., N.S.W., 1898, p. 558.

There are three females which I refer to this species; in two of them the prothorax is coloured as described, but in the other it is entirely pallid. The prothorax in all three appears to be slightly notched in the middle but this notch is invisible from most directions. In two of them the scutellum is infuscate in the middle.

I regret to state that I have described the male under the name of *capucinus*, having been misled by certain slight colour differences.

Hab. Queensland: Brisbane, Mackay, Barron Falls, Bowen, Gympie.

Metriorrhynchus clientulus, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 81, Pl. II, figs. 78–81; 1878, p. 101; Ill. Typ. Col. (*Synchonnus*), p. 59; Pl. XV, fig. 2.

I have a specimen from the Richmond River which I think is possibly *clientulus* (it certainly belongs to Waterhouse's genus *Synchonnus*, which, to him, was monotypic), but it has about one-third (instead of one-fifth only) of the apex of elytra black and the elytral costae not alternately strongly elevated, as in most of the species, but (especially on the dark portion) appearing almost as nine equally elevated lines. Waterhouse says "the second of the four costae only well defined and extending to the apex; the others less distinct." This species, however, is certainly not the *clientulus* as identified by Blackburn * as its prothorax has the basal two-thirds parallel-sided instead of having the hind angles produced outwards; in fig. 78 of Plate II the prothorax, it is true, is so drawn, but in the later figure † it is drawn exactly as in my specimen.

Since the above was written I received a reply from Mr. Waterhouse, to whom I had written about this species; he said, "My outline (fig. 78) of the thorax is the more correct. These are camera sketches and there is a tendency to

* In a comment under *cliens*, Blackb.

† On comparing the figures of the prothorax, etc., in Trans. Ent. Soc., and Ill. Typ. Col., it will often be noticed that they are given as very different for the one species.

exaggerate, but this figure is fairly good. The figure by Wilson in the 'Types' is not good."

METRIORRHYNCHUS INQUINULUS, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 81, Pl. II, figs. 82–86 *; Ill. Typ. Col. (*Stadenus*), p. 61, Pl. XV, figs. 3–3*a*.

I have seen three specimens of this species from Victoria (exact locality for his types was unknown to Waterhouse). In appearance they are much like *haemorrhoidalis* but are larger and with the prothorax triareolate only. The figures given in the two publications quoted are not in accordance with each other.

Hab. VICTORIA: Launching Place.

METRIORRHYNCHUS LIMBATUS, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 81, Pl. II, figs. 88–91; 1878, p. 180, genus 30; Ill. Typ. Col. (*Achras*), p. 62, Pl. XV, fig. 7.

There are several females before me which appear to be referable to this species, only one of them, however, agrees with the description in having "none (of the costae) reaching to the apex"; in the other specimens the second and fourth costae are distinctly joined to the apex. They vary in length from $3\frac{1}{2}$ to $4\frac{1}{2}$ lines.

In appearance the species closely resembles *coenosus* and *marginipennis*; from which, however, it may be readily distinguished by the sculpture of the prothorax.

Hab.† QUEENSLAND: Mount Tambourine; N.S. WALES: Thornleigh, Blue Mountains; VICTORIA: Studley Park.

METRIORRHYNCHUS DICHROUS, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 86, Pl. II, figs. 86–87 ‡; 1878, p. 102, genus 29; Ill. Typ. Col. (*Stadenus*), p. 61, Pl. XV, fig. 5; Bourg. (*Porrostoma*), Ann. Soc. Ent. Fr., 1889, p. 235.

Only the female was known to Waterhouse; the male differs in being smaller with longer antennae, the joints of

* 83*a*, 86*a* and 86*b* evidently do not refer to this species but to *dichrous*.

† Mr. Waterhouse gives "Australia" as locality for the type.

‡ There is some confusion as to the numbers attached to the figures of this species and *inquinulus*, as the latter are referred to as 82–86, the former 86–87. On examining the plate 86*a*, 86*b* and 87 all seem to agree with the description of *dichrous*.

which have longer rami, though not so long as in *togatus*; which species it very closely resembles but can be readily distinguished from it by the sculpture of the prothorax (3-areolate in *dichrous*, 7-areolate in *togatus*).

Hab. W. Australia: King George's Sound.

Metriorrhynchus irregularis, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 76, Pl. I, figs. 18–18*a*; Ill. Typ. Col., p. 46, Pl. XI, fig. 8.

There are three specimens which I refer to this species; they are however all rather larger (4½ to 5 lines) than the type (3 lines), but in other respects agree exactly with the original description and figures, and as so many species of the genus vary in size the difference in length may be of no importance.

In general appearance these specimens closely resemble small ones of *lateralis* but differ in the considerably shorter rostrum * and shorter and differently formed antennae.

Hab. E. Australia: Mackenzie River †; Queensland: Brisbane; N.S. Wales: Gosford, Sydney.

Metriorrhynchus fuscolineatus, Wat., Ill. Typ. Col., p. 47, Pl. XII, fig. 4.

Porrostoma lineatum, Wat. (*n. pr.*), Trans. Ent. Soc. Lond., 1877, p. 78, Pl. I, figs. 45–48.

laetus, Blackb., P. L. S., N.S.W., 1891, p. 526.

The type of this species was recorded from N.W. Australia, and a second specimen from Tasmania. Thinking it possible that *laetus* was identical I sent a specimen to Mr. Griffith of Adelaide asking him to have it compared with the type of *laetus*, I also sent an exactly similar specimen to Mr. Waterhouse, asking for it to be compared with the type of *fuscolineatus*. Mr. Griffith wrote as follows:—"Your specimen was duly handed to Mr. Blackburn, who says he sees no particular difference and is quite agreeable to call it a colour variety of *M. laetus*. One point in colour is that your specimen has the tops of the elytral carinae yellow, whilst in the type

* Another similarly coloured species has practically no rostrum, but the only specimen I now have is not in condition to be described.

† I am unable to find this river on the map.

they are black." * Mr. Waterhouse replied:—"The specimen you sent is certainly my *fuscolineatus*."

Hab. N.W. AUSTRALIA; TASMANIA: Hobart; N.S. WALES: Bulli, Galston, National Park.

METRIORRHYNCHUS MELASPIS, Bourg. (*Porrostoma*), Ann. Soc. Ent. Fr., 1889, p. 235.

A specimen (from N.W. Australia) agrees exactly with the description of this species except that it is much larger (14 mm. as against a maximum of 9 mm. known to Bourgeois). But a number of species vary to an even greater extent than this; so, till evidence to the contrary is forthcoming, I shall regard this species as being probably a large specimen of *melaspis*.

Hab. AUSTRALIA.

METRIORRHYNCHUS LATERALIS, Redt., Reise Novara, II, p. 100; Wat., Trans. Ent. Soc. Lond., 1877, p. 74, Pl. I, figs. 15–17.

marginicollis, Macl., Trans. Ent. Soc., N.S. Wales, p. 263.

I have examined the type of *marginicollis* and it belongs to the species described by Waterhouse as the *lateralis* † of Redtenbacher. Macleay does not mention the rostrum, but in his type it is long (much as in *rhipidius*). The species varies considerably in size.

Hab. N.S. WALES: Sydney, Jenolan, Tweed River; QUEENSLAND: Brisbane.

METRIORRHYNCHUS VITTATUS, Blackb., T. R. S., S.A., 1886, p. 258.

A female specimen received from Mr. Blackburn and bearing a label in his writing "*vittatus Blackb.*" is probably the female mentioned by him when describing that species. I can only regard it, however, as one of the numerous varieties of *rufipennis*. At the same time, I do not think that *vittatus* can possibly belong to that species, as the antennae of its male are described as strongly flabellate

* In the original description, however, Mr. Blackburn says:—"In the male before me the elytral costae are scarcely splashed with orange colour, in the female very distinctly; probably these colour characters are variable."

† I have not seen the original description of *lateralis*.

and the rostrum "nearly half again as long as wide." The prothorax also is described as "a little reddish on the sides." *

METRIORRHYNCHUS EREMITUS, Blackb., *l. c.*, 1900, p. 55.

I have typically coloured specimens of this species from several localities.

Two specimens (sexes) in the National Museum from Studley Park evidently represent a variety; they have the reddish markings of the elytra confined strictly to the thickened sutural, apical and lateral margins. The prothorax has part of the sides, but not the extreme sides (which are black) of a dingy red, whilst its apex is black.

Hab. VICTORIA: Dividing Range, Studley Park, Brighton, Emerald; N.S. WALES: Blue Mountains.

BREVIROSTRIS, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 74, Pl. I, figs. 13-14; Ill. Typ. Col., p. 44, Pl. XI, fig. 4.

N.W. AUSTRALIA.

UNIFORMIS, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 76, Pl. I, figs. 28-31; Ill. Typ. Col., p. 45, Pl. XI, fig. 7.

QUEENSLAND: Bowen.

APICALIS, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 77, Pl. I, figs. 39-44; Ill. Typ. Col., p. 46, Pl. XII, fig. 1.

QUEENSLAND: Cape York, Port Essington, Endeavour River.

SCALARIS, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 79, Pl. I, figs. 53–56; Ill. Typ. Col., p. 48, Pl. XII, fig. 3.

N.W. AUSTRALIA.

FALLAX, Wat. (*Porrostoma*), Trans. Ent. Soc. Lond., 1877, p. 79, Pl. I, figs. 57–60; Ill. Typ. Col., p. 48, Pl. XII, fig. 5.

QUEENSLAND: Moreton Bay.

* In the female before me the prothorax is of uniform colour.

CENTRALIS, Macl., P. L. S., N.S.W., 1887, p. 230.
QUEENSLAND : Cairns.

FOLIATUS, Macl., *l. c.*, p. 230.
QUEENSLAND : Mossman River.

HIRTIPES, Macl., *l. c.*, p. 231.
QUEENSLAND : Mossman River.

FUMOSUS, Macl. (*Xylobanus*), *l. c.*, p. 231.
QUEENSLAND : Cairns.

MINIATICOLLIS, Macl. (*Xylobanus*), *l. c.*, p. 232.
QUEENSLAND : Barron River.

MEYRICKI, Blackb., T. R. S., S.A., 1886, p. 258.
W. AUSTRALIA : King George's Sound.

INSIGNIPENNIS, Blackb., *l. c.*, 1900, p. 52.
TASMANIA : Hobart, Mount Wellington.

CLIENS, Blackb., *l. c.*, p. 53.
N.S. WALES : Tweed River.

MENTITOR, Blackb., *l. c.*, p. 54.
VICTORIA : Dividing Range.

PARADOXA, Blackb., *l. c.*, p. 55.
VICTORIA : Dividing Range.

MONTICOLA, Blackb., P. L. S., N.S.W., 1891, p. 526.
VICTORIA : Alpine District.

OCCIDENTALIS, Blackb., *l. c.*, p. 526.
W. AUSTRALIA : Eyre's Sand Patch.

MARGINIPENNIS, Lea, *l. c.*, 1898, p. 556.
N.S. WALES : Sydney, Blue Mountains, Bulli.

COENOSUS, Lea, *l. c.*, p. 557.
N.S. WALES : Sydney, Galston, Gosford, Blue Mountains.

METRIORRHYNCHUS APTERUS, n. sp. (*Fig.* 1.)

♀ Black ; elytra reddish testaceous.

Rostrum short (distinctly wider than long). Antennae short (scarcely passing hind coxae), serrate ; 2nd joint unusually distinct, 3rd at least half as long again as 4th ; 4th–10th transverse. *Prothorax* strongly transverse, distinctly 7-areolate, side constricted in middle, hind angles acute. *Scutellum* gradually decreasing in width to apex, which is rather feebly emarginate. *Elytra* short, indirect at base, each separately narrowed towards apex so that the apices are widely separated ; quadricostate, the interstices with double rows of large transverse rectangular punctures. *Abdomen* very large, strongly inflated, passing elytra for more than half its total length ; 2nd, 3rd and 4th segments each more than thrice as wide as long. Length 23 mm.

Hab. QUEENSLAND : Darling Downs (type in C. French's collection).

So far as I am aware this is the only apterous species of the subfamily known from any part of the world. In one of the two specimens before me the elytra are 6, in the other 9 mm. long ; in the former each is less than thrice as long as wide, in the latter each is fully four times as long as wide. The legs are rather stronger than usual, but are otherwise normal.

METRIORRHYNCHUS UNISERIATUS, n. sp.

♂. Black ; elytra reddish-testaceous.

Rostrum very short or absent. Antennae long ; 2nd joint moderately distinct, 3rd slightly longer than 4th, its ramus slightly shorter than the joint itself, 4th–9th each with the ramus longer than the joint, in the 10th as long ; 11th as long as greatest length (including the ramus) of 10th. *Prothorax* moderately transverse, distinctly 7-areolate, apex rounded, sides constricted in middle, basal angles acute and laterally produced. *Scutellum* feebly depressed, narrowed apex and which is semicircular. *Elytra* narrow, feebly diminishing n width from base to apex ; each quadricostate, the interstices with single series of large transverse punctures separated by distinct and almost regular ridges. *Abdomen* with penultimate segment entire at apex.

Length 6 mm.

♀. Differs in being larger, antennae shorter stouter and strongly

serrate only, the 11th joint almost twice the length of 10th ; the prothorax also is rather less transverse.

Length 8 mm.

Hab. N.S. Wales : Richmond River (*T. G. Sloane* and *A. M. Lea*).

Readily distinguished from all the similarly coloured species by the elytral punctures being in single instead of in double rows. Although no species having similarly punctured elytra were known to Waterhouse they appear to be fairly numerous in Australia, as three (*insignipennis*, *paradoxa* and *meyricki*) were described by Blackburn, one (*miniaticollis*) by Macleay, and several are here described.* I am also acquainted with others which, for various reasons, are not now described.

In the penultimate segment entire at the apex in the male, the species differs from all others before me. The apical segment however is much narrower than in the female.

Metriorrhynchus cancellatus, n. sp.

♂. Black ; suture sides and apex of elytra reddish-testaceous.

Rostrum absent. Antennae passing hind coxae, very strongly serrate (almost ramose) ; 2nd joint just visible from the sides, 3rd considerably larger but scarcely longer than 4th, its produced portion not as long as the truncated apex, 4th–9th with the produced portion about half the total length of each. *Prothorax* distinctly 7-areolate, rounded in front, constricted in middle, base slightly produced on each side. *Scutellum* semicircular at apex. *Elytra* narrow, parallel-sided ; each quadricostate, the interspaces with single rows of large transverse or square punctures, separated by strong transverse ridges. *Abdomen* with penultimate segment feebly emarginate at apex.

Length 8 mm.

Hab. Queensland : Brisbane (*R. Illidge*) ; N.S. Wales : Blue Mountains (*Messrs. Taylor*) ; Mount Wilson (*A. S. Olliff*).

The remarkable sculpture of the elytra is much as it is described as being in *paradoxa*, but the connecting ridges, though everywhere distinct, are everywhere below the

* *M. coenosus*, Lea, might also be fairly regarded as having she punctures in single rows.

level of the costae, as can plainly be seen on viewing the insect *along* the elytra; the elytra also have both the suture and the outer margins pallid to the extreme base,* not as in *paradoxa* the suture black and the outer markings not continuous to base. Nevertheless it is possible that it will afterwards have to be placed as a variety of *paradoxa*, especially as the type of the latter was from a mountainous district and therefore especially liable to melanism.

METRIORRHYNCHUS SIMPLICICORNIS, n. sp.

♂. Black ; basal three-fifths of elytra reddish-testaceous.

Head polished. Eyes large. Rostrum absent. Antennae serrate, passing pallid portion of elytra ; 2nd joint rather distinct, 3rd distinctly longer than 4th, none of the others transverse. *Prothorax* moderately transverse, apex rounded, sides constricted in middle, posterior angles very acute ; with a strong median areolet continuous almost to apex, from its middle obscurely connected with each side. *Elytra* narrow and parallel-sided ; quadricostate, the interstices each with a single row of large rectangular punctures, becoming irregular at base and apex. *Abdomen* with penultimate segment widely and semicircularly but not very deeply excised in middle.

Length 6 mm.

Hab. QUEENSLAND: Mount Tambourine (type in R. Illidge's collection).

In appearance closely resembles the following species (which also has the elytral punctures in single series) but with antennae serrate only. I am not sure whether Waterhouse would have regarded the prothorax as 3- or 5-areolate ; if the former it would have been referred to *Stadenus*, if the latter, to *Synchonnus*.

METRIORRHYNCHUS RAMOSUS, n. sp. (*Fig.* 23.)

♂. Black ; basal three-fifths of elytra reddish-testaceous.

Rostrum absent. Antennae distinctly passing middle of elytra, strongly flabellate ; 3rd joint not much longer than 4th, its ramus about once and one half the length of the joint itself, of the others (except the 10th) the ramus in each is about twice the length of the joint, 11th about twice the length of 10th. *Prothorax* moderately transverse, distinctly 7-areolate, apex rounded, sides constricted in middle, basal angles acute and laterally produced.

* The pallid markings, except at the apical 5th, are confined strictly to the thickened suture and margins.

Scutellum shining, apex semicircular. *Elytra* narrow, parallel-sided; each quadricostate, the interspaces with single rows of very large transverse punctures, separated by rather strong ridges. *Abdomen* with penultimate segment triangularly excised almost to base.

Length 7 mm.

Hab. N.S. Wales: Tweed River (*W. W. Froggatt*).

The antennal rami are unusually long for *Metriorrhynchus* as defined by Waterhouse. In colour the species greatly resembles *clientulus, dichrous, togatus*, etc., but may be at once distinguished by the elytral punctures being in single series.

Metriorrhynchus brisbanensis, n. sp.

♂. Black, basal two-thirds of elytra reddish-testaceous.

Rostrum very short (fully twice as wide as long). Antennae passing middle of elytra, very strongly serrate; 2nd joint moderately distinct, 3rd distinctly longer than 4th, the outline of the produced portion of each oblique (with but a slight swelling in the middle) from the base, the shorter side of each of the 4th–9th joints about half the length of the longer side. *Prothorax* feebly transverse, distinctly 7-areolate, apex rounded, sides constricted in middle, basal angles acute and laterally produced. *Scutellum* deeply impressed in middle, apex semicircular. *Elytra* long, thin and parallel sided, each quadricostate, the interspaces with double rows of more or less round and regular punctures. *Abdomen* with the penultimate segment equilaterally triangularly excised to its middle.

Length 8–9 mm.

Hab. Queensland: Brisbane (*R. Illidge*).

The smaller elytral costae separating the rows of punctures are no stronger than the transverse ridges separating each puncture, and are sometimes inclined to disappear. In one specimen the sutural punctures appear as a single row on each side to about the middle (where they become normal), being separated by oblique ridges without a trace of the smaller longitudinal costae; elsewhere they are very irregular.

From *clientulus, cliens* and *dichrous* readily distinguished by the seven prothoracic areolets; from the preceding species by the double rows of elytral punctures. From *togatus* by the elytra (of which less of the apex is dark) being longer and thinner; the medio-basal prothoracic areolet is also smaller, the carina connecting it with the

apex shorter and the sides more constricted in the middle; nevertheless it is very closely allied to *togatus*, and may eventually be considered as merely a geographical variety of that species.

METRIORRHYNCHUS BASIFLAVUS, n. sp. (*Fig.* 82.)

♂. Black; prothorax, scutellum, basal fifth of elytra, mesosternum, four anterior coxae and base of four anterior femora flavous.

Head shining. Eyes large. Rostrum absent. Antennae serrate passing middle of elytra, 2nd joint indistinct, 3rd considerably longer than 4th, none transverse. *Prothorax* small, transverse, apex truncate, sides lightly constricted in middle, posterior angles produced and acute; 3-areolate, median areolet rather narrow, a strong carina (rather more than one-third of the total length) connecting it with apex. *Scutellum* semicircularly emarginate at apex. *Elytra* narrow, slightly inflated towards apex; quadricostate, the 1st (from the suture) costa much stronger than the others, interstices with single rows of large, rectangular punctures, becoming irregular towards apex, but rather larger towards base. *Abdomen* with penultimate segment triangularly excised in middle.

Length 7½ mm.

Hab. QUEENSLAND: Barron River, Cairns (Macleay Museum).

The colour is apparently much like *longicornis* and *miniaticollis* (the latter has also the elytra uniseriately punctate), but from both it can be readily distinguished by the triareolate prothorax; *ampliatus* (Macleay *nec* Waterhouse) has the prothorax quinqueareolate and elytra with double rows of punctures, but till the sculpture is examined appears almost exactly the same; according to Waterhouse *ampliatus* would belong to *Synchonnus* and *basiflavus* to *Stadenus*.

METRIORRHYNCHUS CONSTRICTICOLLIS, n. sp. (*Figs.* 24, 83, 164.)

♂. Black; basal half of elytra (except the suture and a subtriangular space about scutellum) flavous.

Rostrum very short. Antennae stout, passing middle of elytra, joints wide and feebly serrated, 3rd slightly longer and wider than 4th, the others to 10th gradually decreasing in size. *Prothorax* moderately transverse; 3-areolate, apex not much narrower than base and slightly constricted in middle, sides strongly constricted,

basal angles acute and laterally produced. *Scutellum* shining, depressed, almost parallel-sided to apex, which is semicircularly emarginate. *Elytra* narrow, parallel-sided; each quadricostate, the interspaces with single rows of large rectangular punctures, separated by distinct ridges. *Abdomen* with the penultimate segment widely and subtriangularly excised.

Length 6 mm.

Hab. W. Australia: Mount Barker.

In size, colour and general appearance strongly resembles *meyricki* (also from Western Australia, and with the elytral punctures in single series), but at once distinguished by the prothorax being distinctly divided into three areolets instead of into seven. The elytral punctures are usually transverse but are sometimes distinctly longer than wide, those of the two sutural rows are, as a rule, larger than the others. The median areolet of the prothorax is narrowly open posteriorly and terminates about one-third from the apex, with which it is connected by a narrow shining carina.

Metriorrhynchus obscuripennis, n. sp.

♂. Black; elytra dark reddish-brown, the sides and suture somewhat paler.

Rostrum very short. Antennae passing middle of elytra; 2nd joint moderately distinct, 3rd no longer than 4th, its ramus (as also that of 10th) slightly shorter than the joint itself, of the others mostly longer than the supporting joint. *Prothorax* moderately transverse; 5-areolate, the costae connecting the median areolet with the sides rather indistinct; anterior angles rounded, apex slightly produced and notched in middle, sides constricted in middle but basal fourth almost parallel-sided, posterior angles subacute but not laterally produced. *Scutellum* diminishing in width to apex, which is rather deeply emarginate. *Elytra* narrow, parallel sided; each quadricostate, the interspaces with double rows of large irregular punctures, the transverse and longitudinal ridges separating the punctures often indistinct. *Abdomen* with the penultimate segment triangularly excised.

Length 13 mm.

Hab. Tasmania: Hobart.

In appearance somewhat like various forms of *Trichalus discoideus*, but the prothorax 5-areolate, sutural costa not

trifurcate at base, etc. It would probably have been referred to *Stadenus* by Mr. Waterhouse; from his *inquinulus* it differs in the colour of the elytra, the prothorax more transverse and angular and notched in the middle of the apex; elytral punctures less regular, etc.

METRIORRHYNCHUS TRIAREOLATUS, n. sp. (*Figs.* 84, 162, 163.)

♂. Black; elytra partly reddish-testaceous.

Head shining. Rostrum almost absent. Antennae strongly serrate; end joint moderately distinct, 3rd slightly longer than 4th. *Prothorax* moderately tranverse, apex feebly emarginate in middle, sides feebly constricted in middle, all the angles strongly rounded; 3-areolate, the middle areolet continuous from base almost to apex. *Scutellum* larger than usual, apex semicircular. *Elytra* feebly increasing in width to apex; quadricostate, the interstices with double rows of subquadrate punctures, the ridges separating the punctures rather feebly elevated. *Abdomen* with penultimate segment narrowly and deeply excised.

Length 8¼ mm.

♀. Differs in being larger, elytra less parallel, abdomen simple, etc.

Hab. W. AUSTRALIA: Vasse (*A. M. Lea*); King George's Sound (Australian Museum).

Although the antennae in all the specimens before me are damaged (in one male only five joints are left, in another male and in a female only one joint of each is left), I have described this species on account of its strong resemblance to *meyricki* and *constricticollis* (both from W. Australia) which yet are so differently sculptured as to render them easily separable. *Nigrovittatus* (from New South Wales) is very similarly coloured and also has the prothorax triareolate but the posterior angles are very decidedly acute; in the present species also the elytra are glabrous, shining, and with the costae rather widely separated, whilst in that species the elytra are pubescent, opaque, and with the costae much closer together. The black portion of the elytra is moderately wider at the base, is narrowed at the basal third and then dilates so as to cover the whole of the apical fourth.

METRIORRHYNCHUS NIGROVITTATUS, n. sp. (*Fig.* 161.)

♀. Black; elytra testaceous but with a broad black sutural stripe; which widens posteriorly.

Rostrum absent. Antennae moderately serrate, passing middle of elytra ; 2nd joint unusually distinct, 3rd about twice as long as wide and longer than 4th, the others to 10th gradually decreasing in size. *Prothorax* feebly transverse ; 3-areolate, apex regularly rounded, sides very feebly constructed in middle, basal angles acute and somewhat obliquely produced. *Scutellum* feebly depressed, parallel-sided, apex semicircular. *Elytra* narrow, parallel-sided ; each quadricostate, the 2nd and 4th (from suture) much more distinct than the others, the interspaces with very irregular double (in many places appearing single) rows of punctures.

Length 7–8 mm.

Hab. New South Wales : 'Blue Mountains (Macleay Museum, *E. Ferguson*, and *H. J. Carter*).

The sutural stripe is enclosed between the second costae for about one-half of its length, it then dilates so that at the apex the entire surface is covered by it. The median prothoracic areolet is large, continuous to base and apex, and widest in middle, in each side of which there is a short cariniform spur, which if continued to the sides would cause the prothorax to appear 5-areolate. The punctures are very irregular and are frequently conjoined, both longitudinally and transversely, so that in some parts there appear to be but six rows on each elytron (the two outer rows being apparently always distinct). The smaller longitudinal ridges are altogether absent in places, so that the 1st and 3rd costae being less distinct than the 2nd and 4th each elytron appears almost as if only bicostate. The type is in the Macleay Museum.

Metriorrhynchus moerens, n. sp.

♂. Black.

Rostrum long (scarcely shorter than the prothorax), shining, finely punctate at open, more noticeably towards base. Antennae stout, just passing hind coxae ; 2nd joint invisible from above, 3rd considerably longer than 4th, its ramus about two-fifths of its total length, 4th–9th each with the ramus about half of its total length. *Prothorax* distinctly 7-areolate ; apex much narrower than base, basal angles acute and laterally produced. *Scutellum* transverse, apex semicircular. *Elytra* each with four distinct costae, the interstices with almost regular double rows of transverse punctures. *Abdomen* with penultimate segment incised almost to base.

Length 12 mm.

♀. Differs in being larger than the male, the rostrum longer and thinner, antennae rather shorter and strongly serrate only.

Length 14–15 mm.

Hab. TASMANIA: Bruni Island (*A. M. Lea*), Hobart (*H. J. Carter*).

A male from the Huon River has the 3rd joint longer than the type, with its ramus shorter and nearer the parallel to the joint itself. A similar variation is common in *rhipidius*. In fact, practically the only really distinct feature separating this species and *rhipidius* is the colour of the elytra.

From the other black Tasmanian species it can be distinguished by the length of its rostrum (as against *atratus*), and by the double series of punctures on the elytra (as against *insignipennis*). It would be a *Porrostoma* according to Mr. Waterhouse. The specimens from Bruni Island were taken on *Leptospermum* blossoms.

METRIORRHYNCHUS DISCONIGER, n. sp. (*Fig.* 160.)

♂. Black ; elytra partly reddish-testaceous.

Head moderately shining. Rostrum long (about twice the length of basal joint of antennae), but fairly stout. Antennae extending to middle of elytra, pectinate ; 2nd joint indistinct, 3rd distinctly longer than 4th, its ramus not half its total length, 4th–8th each with the ramus half the total length, of 9th shorter, of 10th still shorter. *Prothorax* feebly transverse, apex rounded, sides feebly constricted in middle, posterior angles subacute ; distinctly 7-areolate. *Scutellum* rather feebly emarginate at apex. *Elytra* rather less narrow than usual ; quadricostate, the interstices with irregular double rows of punctures, becoming more regular and almost rectangular towards base.

Length 11 mm.

♀. Differs in being larger, prothorax and elytra rather wider, antennae shorter, strongly serrate only, and with the 4th–9th joints transverse.

Hab. VICTORIA (type ♂ in Macleay Museum, type ♀ in C. French's collection).

The black portion of the elytra is narrowest at the base, gradually dilated towards and widest at a little beyond the middle, and then contracted and terminated (with a rounded outline) at about one-seventh from the apex in the male, at about one-sixth in the female ; at its widest it almost

touches the outer of the four discal costae. In both the specimens before me the scutellum has the appearance of being feebly longitudinally ribbed, but this may be accidental. In the male the abdomen is missing.

METRIORRHYNCHUS ORDINARIUS, n. sp.

♂. Black; sides of prothorax, sides and apical fifth of elytra reddish-testaceous.

Head moderately shining. Rostrum long, thin, and shining. Antennae long (extending to about one-fourth from apex of elytra), strongly serrate; 2nd joint indistinct, 3rd about twice as long as wide and distinctly longer than 4th, 6th–10th subtriangular. *Prothorax* feebly transverse, base much wider than apex, posterior angles produced but rounded, sides constricted in middle; 7-areolate, but the ridges bounding the areolets not very distinct. *Scutellum* diminishing in width to apex, which is semicircularly emarginate. *Elytra* narrow, parallel-sided; quadricostate, the interstices with somewhat irregular double rows of punctures, the ridges separating the punctures rather feeble except towards base, where the longitudinal ones are almost as stout as the costae. *Abdomen* with the penultimate segment deeply excised.

Length 10½ mm.

♀. Differs in being slightly wider, the antennae shorter and wider and the abdomen simple.

Hab. VICTORIA: Monbulk, Studley Park, Gippsland.

The pale margins of the elytra are very narrow at the basal two-thirds, but then dilate so as to cover the whole of the apical fifth, the black portion consequently is somewhat triangularly advanced along the suture. In colour it appears to resemble *monticola*, but its rostrum is fully thrice the length of the basal joint of the antennae. It would be a *Porrostoma* according to Waterhouse.

METRIORRHYNCHUS BATESI, n. sp.

♀. Black; basal three-fifths of elytra of a dark brownish-red.

Rostrum absent. Antennae stout, strongly serrate, extending to about middle of elytra; 2nd joint unusually distinct, 3rd distinctly longer than 4th. *Prothorax* transverse; distinctly 7-areolate, apex produced and slightly notched in middle, sides not constricted in middle, base deeply bisinuate and with a distinct median notch, basal angles rounded off but rectangular. *Scutellum* rather narrow and notched at apex. *Elytra* long, parallel-sided; each quadricostate, the

interspaces with regular double rows of fairly large transverse punctures, separated by distinct ridges, the longitudinal ridges separating the punctures at base fully as distinct as the regular costae, but becoming smaller (although still regular and distinct) from about the basal fourth.

Length 14 mm.

Hab. N.S. Wales: Tweed R. (*W. W. Froggatt*).

A very distinct species. Mr. Froggatt sent with this species a specimen which resembles it in size, colour and general appearance to a remarkable extent, and yet it belongs to the *Oedemeridae*. As a description may be of interest, this is appended as a footnote.*

Metriorrhynchus simsoni, n. sp.

♂ Black; shoulders and tips of elytra reddish-testaceous.

Rostrum almost absent. Antennae passing hind coxae, very strongly serrate but not ramose; 2nd joint indistinct even from the sides, 3rd joint perceptibly longer than 4th. *Prothorax* distinctly 7-areolate; not much wider than long, base not much wider than apex and almost right angled, middle constricted. *Scutellum* transverse, apex semicircular. *Elytra* each quadricostate; the insterstices with

---

* Pseudolychus wallacei, n. sp.

Black; basal three-fifths of elytra of a dark brownish-red Clothed with short pubescence varying from greyish to black; each of the abdominal segments tipped with very distinct white pubescence.

Head with small concealed punctures. Antennae broad, extending to basal third of elytra; 1st joint as long as eye and much shorter, 3rd–10th strongly serrate, gradually decreasing in length and width, 11th thinner and longer than 10th. *Prothorax* slightly transverse, apex rounded, base slightly bilobed, sides feebly incurved to middle, disc with obtuse subtubercular elevations. *Scutellum* longer than wide. *Elytra* considerably wider and about six times longer than prothorax; sides and suture thickened and the disc of each with three distinct costae, interspaces more or less convex and with dense partially concealed punctures. *Legs* long; basal joint of hind tarsi longer than the rest combined, of the front tarsi almost as long as the three following combined, of the middle tarsi much shorter; claws obtusely lobed at base.

Length 14 mm.

Hab. N.S. Wales: Richmond River (*W. W. Froggatt*).

Readily distinguished from *haemorrhoidalis* and the allied species by the four apical joints of antennae not becoming suddenly narrower than the others. The prothorax has altogether ten subtubercular elevations; of these a moderately long one is on each side of the median line, two (irregular and partly conjoined) are on each side of the base and two (very indistinct) on each side of the apex.

irregular double series of punctures; from most directions (except towards base and apex) appearing uniseriately punctate. *Abdomen* with penultimate segment triangularly excised to base.

Length 11 mm.

Hab. TASMANIA (type in Aug. Simson's collection).

The figure of *Eros praefectus*, given by Waterhouse,* will give a very good idea of the general appearance of this species, although in that species the elytra are not tipped with red. The antennae are sufficient to distinguish it from *rufipennis* and all the varieties of that species. The elytra when viewed directly from above appear to be without the fine intermediate ridges (and therefore as uniseriately punctate) but these (or parts of them) are sufficiently distinct from the side.

METRIORRHYNCHUS GRACILIS, n. sp.

♂. Of a sooty-brown colour; prothorax, scutellum, elytra (except an oblique space on each side of apex), coxae, and base of all the femora flavous.

Head shining. Eyes large. Rostrum absent. Antennae long, flabellate; 2nd joint distinct, 3rd slightly longer than 4th, its ramus (as also that of 10th) about half its total length, 4th–9th each with the ramus distinctly more than half its total length. *Prothorax* subquadrate, apex produced and rounded in the middle, no narrower than base, anterior angles feebly obtuse, posterior feebly acute, sides feebly constricted in middle, base trisinuate; 7-areolate, the median areolet small, narrow and confined to basal half, the four front ones very feebly defined; apical half rather coarsely punctate. *Scutellum* feebly increasing in width to apex, which is semicircularly emarginate. *Elytra* long thin and parallel-sided; quadricostate, the interstices with regular (irregular towards apex) rows of rather small, rectangular punctures. *Abdomen* with penultimate segment widely excised almost to base.

Length 9 mm.

Hab. QUEENSLAND: Endeavour River (type in Macleay Museum).

Differs from the description of *miniatus* in having the apex of the elytra dark and the median prothoracic areolet confined to the basal half, with all of the anterior ones very ill defined; apparently also in the colour of the legs. It

* Ill. Typ. Col., Plate IX, fig. 6.

seems fairly close to *posticalis* but with less of the elytra dark and prothoracic sculpture different. It is like *testaccicollis* in having the median areolet confined to the basal half, but is otherwise very different. Although the majority of the elytral punctures are really rectangular many of them appear to be almost circular till closely examined. This species would be a *Cladophorus* according to Waterhouse.

METRIORRHYNCHUS COSTICOLLIS, n. sp. (*Fig.* 85.)

♂. Black or dark brown; prothorax and scutellum reddish flavous. *Rostrum* practically absent. Antennae moderately long, strongly ramose; ramus of 3rd joint the length of the joint itself, of each of the 4th–10th joints distinctly longer. *Prothorax* rather strongly transverse, sides incurved to middle; 7-areolate, the median areolets rather smaller than the lateral, but all four with distinct punctures, medio-basal areolet narrow and continuous to apical third; all the costae strongly defined. *Scutellum* triangularly excised at apex. *Elytra* long thin and parallel-sided, each with double rows of small almost regular punctures, the costae separating which, however, are distinct only on the basal two-thirds.

Length 6 mm.

Hab. QUEENSLAND: Cairns (type in Macleay Museum).

The portion of the elytra covered by the prothorax is also pale. Owing to the irregular contraction of the abdomen I have not been able to satisfy myself as to the exact shape of the penultimate segment in either of the two specimens before me. For a short special table dealing with this, the two following and several other species see notes under *testaccicollis*.

METRIORRHYNCHUS DIMINUTIVUS, n. sp.

♂. Blackish-brown, parts of three basal joints of antennae and parts of legs obscurely paler; prothorax, scutellum, muzzle, trochanters, base of femora, and four front coxae more or less flavous.

Rostrum practically absent. Antennae long and thin, joints somewhat serrate and none transverse. *Prothorax* moderately transverse, sides strongly incurved to middle, and apex bilobed, hind angles acute; 7-areolate, costae separating the four frontal areolets (except the median costa which is very distinct) short and not well defined; apex densely punctuate. *Scutellum* rather widely emarginate. *Elytra* long, slightly dilated posteriorly, with single series of large more or

less rectangular punctures. Penultimate segment of *abdomen* triangularly excised.

Length 5 mm.

Hab. QUEENSLAND : Cairns (type in Macleay Museum).

On the basal third of the elytra the third row of punctures becomes double owing to a short costa, but elsewhere, even towards the apex, there is not the least trace of gemination.

METRIORRHYNCHUS ATRICORNIS, n. sp.

♀. Black ; prothorax, scutellum, trochanters and four anterior coxae flavous.

Rostrum practically absent. Antennae long, strongly serrate, none of the joints transverse. *Prothorax* strongly transverse, apex produced in middle, sides incurved to middle, front angles obtuse, hind very acute ; 3-areolate, median areolet continuous or almost continuous to apex, a short costa on each side of its middle. *Elytra* long, thin, and subparallel ; with double rows of small, somewhat irregular punctures ; the second strong costa much more distinct than the others except towards the base.

Length 7–8 mm.

Hab. QUEENSLAND : Cairns (type in Macleay Museum).

The prothorax at first appears to be 3-areolate, and I have so described it, but on close inspection there is seen to be a short carina on each side of the median areolet, this latter in three specimens is continuous to both base and apex, but in two others is terminated before the apex. In two of them the scutellum is infuscate at tip. I have described the females as the only male* I have seen has lost both its antennæ, but as those of the female are unusually long for that sex, I do not think that in the male the joints are flabellate.

METRIORRHYNCHUS MILITARIS, n. sp. (*Fig.* 86.)

♂. Black, sides of prothorax, sides and suture of elytra and rostrum (except labrum) reddish.

Rostrum very short. Antennae long, rather strongly serrate, none of the joints transverse. *Prothorax* slightly longer than wide, apex rounded, sides very feebly incurved to middle ; front angles strongly

* The penultimate segment of its abdomen is triangularly excised to the base.

obtuse, the hind almost acute ; 7-areolate ; the frontal half strongly punctate. *Elytra* long, thin and parallel-sided ; with double rows of small round punctures, regular except towards apex ; the four strong costae on each very well defined, though not very stout. Penultimate segment of *abdomen* subtriangularly excised.

Length 7½ mm.

Hab. N.S. Wales : Mount Wilson (*A. S. Olliff*, January, 1889).

The reddish markings of the elytra are very narrow and in the suture are terminated before the base. On one specimen the front margin of the prothorax is thickened and with a regular row of punctures on its upturned edge. In appearance it is close to *cancellatus* and some of the varieties of *rufipennis* but has the side of the prothorax pale. Of the other species having these sides pale and the disc 7-areolate it differs from *cacnosus* by the elytral punctures being in double series ; from *lateralis, ordinarius* and *fuscolineatus* by its very short rostrum ; from *cremita* by the shape of its antennal joints ; but it differs from *cremita* and the four previously named species by its very narrow form, long and almost parallel-sided prothorax with large punctures in front. In general appearance it is fairly close to *narginipennis*, but its elytral punctures are (except near apex) quite regular and the rostrum pallid ; *monticola* has the prothorax transverse and the dark portion of elytra "of a width to include two costae."

Metriorrhynchus variipennis, n. sp. (*Fig.* 87.)

♂. Black, sides of prothorax, sides and suture of elytra reddish.

Rostrum long (almost twice the length of basal joint of antennae. Antennae long, strongly serrate, none of the joints transverse. *Prothorax* transverse, apex slightly produced, basal half much wider than apical half—being rather suddenly dilated at the middle ; 7-areolate, costae distinct ; sides and apex with distinct punctures. *Elytra* long, moderately thin, with double rows of more or less angular punctures ; the four strong costae on each well defined throughout and all equal at base, but not posteriorly. Penultimate segment of *abdomen* deeply and narrowly excised, the incision rounded towards its end and wider there than at its entrance.

Length 11–14 mm.

Hab. N.S. Wales : Bulli (*H. J. Carter* and *A. M. Lea*), Belmore (*Messrs. Taylor*).

In the female the antennal joints are simply rounded on their inner edges, but in the male the 3rd–9th joints are slightly produced at the tip, so as to appear subpectinate. In all the specimens before me the elytra when in position do not touch except at their tips and near the base; this, however, is quite a common feature in the genus. The reddish margins of the prothorax occupy about half its surface. Some specimens have the elytra entirely dark except for the sutural and external costae and a space at the open; in others the reddish markings are continued along the costae; some specimens have the elytra entirely reddish except for a slight infuscation about the scutellum, whilst others have the disc of each (including the costae or not) longitudinally infuscate. In some specimens the outer edge of the third joint is obscurely reddish.

In general appearance much like *fuscolineatus* (*lactus*—also from Bulli) and with almost parallel variation of the elytra, but at once distinguished by the long rostrum (in the types of *lactus* the rostrum of the male is described as "brevi" and of the female "multo minus brevi"). The prothorax is also of different shape. Of the other species having the prothorax 7-areolate and its sides pallid it differs from *lateralis* by the slightly shorter rostrum and considerably shorter antennae; from *ordinarius* by the pale suture, shorter antennae and wider rostrum, *monticola* is said to have a short rostrum and the elytral markings are different. The dark form in appearance is much closer to *eremita* than to any other species, but the rostrum is much longer than in that species.

METRIORRHYNCHUS HETERODOXUS, n. sp. (*Figs.* 25, 88.)

♂. Blackish; sides of elytra reddish.

Head rather less concave than usual. Rostrum almost absent. Antennae stout, extending to middle of elytra; 1st joint as long as wide, and almost concealed, 3rd scarcely half the length of 4th, 4th slightly shorter and stouter than 5th, 6th–10th gradually decreasing in width; 11th slightly longer than 5th. *Prothorax* rather strongly transverse, apex bilobed, sides not incurved to middle, hind angles almost rectangular; 5-areolate, median areolet unusually large, narrowly open in front, its apical half twice as large as its basal, from each side of its middle a curved carina connecting it with the sides, a shorter and less distinct carina on each side near its base. *Scutellum* convex, triangularly notched. *Elytra*

much wider than usual and considerably wider than prothorax, each with but four continuous costae ; these although strong are in places encroached upon by punctures ; punctures large, usually rectangular and in single series ; but in places (especially towards base and apex), subgeminate in arrangement, the transverse ridges separating them sometimes Y-shaped. Penultimate segment of *abdomen* triangularly excised.

Length 8–9 mm.

Hab. N.S. Wales : Blue Mountains (type in Macleay Museum).

Mr. Waterhouse would probably have proposed a special genus for the reception of this species, as the sculpture of the prothorax and elytra, convex scutellum, stout and unusually short 3rd joint of antennae are strongly at variance with the other members of the allied genera. The reddish margins of the elytra are comparatively wide, and are very slightly dilated at the base and apex. At the apex they are continued up the suture for a short distance.

Metriorrhynchus rufirostris, n. sp.

♀. Blackish ; parts of head and of rostrum, edge of third joint of antennae, prothorax, scutellum, elytra and front trochanters reddish-flavous.

Rostrum robust, somewhat longer than broad. Antennae moderately long ; 3rd joint much longer than 4th, 4th–5th feebly, 6th–10th strongly serrate, 5th–7th feebly transverse. *Prothorax* lightly transverse, apex produced in middle, base rather suddenly and angularly, but not very greatly dilated, front angles widely obtuse, hind angles almost rectangular ; 7–areolate, all the costae well defined and continuous, median areolet narrow and terminated at apical third. *Elytra* long, thin and parallel-sided, with double rows of more or less regular, and angular punctures ; larger costae well defined but at base not much more distinct than the smaller ones.

Length 13 mm.

Hab. Queensland : Somerset (*C. French*).

The shorter and differently coloured rostrum (which in length—excluding the labrum—is exactly equal to the first joint of antennae) readily distinguishes from *textilis*, *uniformis* and *nigripes*. The rostrum is longer than in *elongatus* and the third joint of antennae is different. The

sculpture of the elytra is much as in many of the larger females of *rhipidius*.

METRIORRHYNCHUS OPACUS, n. sp.

♀ Deep black.

Rostrum very short. Antennae rather long, 3rd joint once and one half as long as wide and distinctly longer than 4th, the succeeding ones feebly produced internally.* *Prothorax* lightly transverse, apex slightly produced, hind angles produced ; disc 7-areolate. *Elytra* long and thin, quadricostate, the interstices with double rows of rather small regular punctures.

Length 10½ mm.

Hab. QUEENSLAND : Cairns (*E. Allen*).

In general appearance close to *atratus* but narrower, the elytra entirely opaque and with much smaller and more regular punctures, the antennal joints are differently formed, the prothorax is much less constricted at its middle and its medio-apical areolets are larger. From the description † of *fumosus* it differs in its larger size, deep black colour and produced hind angles of prothorax.

The elytra are entirely without gloss and their punctures are small, regular, and rounded, except towards the base where they become angular and transverse ; the first costa is stronger than the second towards the base, but weaker towards the apex.

METRIORRHYNCHUS TIBIALIS, n. sp. (*Figs.* 110, 111.)

♂. Black ; prothorax (a large subcircular basal spot infuscate) and basal two-thirds of elytra reddish-testaceous.

Rostrum very short. Antennae rather short and wide, strongly serrated. *Prothorax* very feebly transverse, apex produced, sides rather strongly constricted in middle ; disc 7-areolate, all the costae sharply defined. *Elytra* long and thin ; quadricostate, the interstices with double rows of rather small punctures, becoming very irregular in places. Penultimate segment of *abdomen* narrowly excised to base. Hind *tibiae* with a strong, blunt, sublaminate, inner projection just beyond the middle.

Length 6½ mm.

Hab. QUEENSLAND : Cairns (*E. Allen*).

* In the type three joints of the antennae are missing.

† The specimen described was received after I had examined the type of *fumosus*.

The hind tibiae * at once distinguish from all previously described species, in general appearance it is something like *Trichalus nubicollis*. The dark portion of the prothorax, though alike in both specimens before me, appears to be of the nature of a stain only, on the elytra the dark portion is slightly advanced on the suture.

Genus TRICHALUS, † Wat., Trans. Ent. Soc. Lond., 1877, p. 82; 1878, p. 103; Ill. Typ. Col., p. 67; Blackb., T. R. S., S.A., 1894, p. 208; 1900, p. 51; Lea, P. L. S., N.S.W., 1898, p. 556.

Xantheros, Fairm., Journ. Mus. Godeffr., 1879, p. 99.

This subgenus of *Metriorrhynchus* is readily distinguished by the prothorax having a single discoidal lanceolate areolet ‡ and the sutural costa of elytra trifurcate at base. § As pointed out by Blackburn there is nothing to distinguish *Xantheros* from it; there certainly is not in the two species described by Fairmaire, with which I am acquainted.

I am acquainted with all the Australian and Tasmanian species except the following:—

Serraticornis, Fab. This must be very close to *sulcatus*.

Ochreatus, Fairm. This should be distinct on account of its black prothorax and black apex of elytra.

The others may be tabulated as follows:—

A. Discal areolet of prothorax double . . .	*insignis*, Lea.
AA. Discal areolet single.	
B. Sutural costa bifurcate at base	*bifurcatus*, n. sp.
BB. Sutural costa trifurcate.	
C. Entirely black	*ater*, Macl.
CC. Not entirely black.	
D. Prothorax black.	
a. Elytra entirely pallid	*semicostatus*, Blackb.
aa. Elytra more or less infuscate in places	*discoideus*, Er.
aaa. Elytra pallid at apex	*funereus*, Blackb.

* The projections, however, are probably confined to the males.

† I have examined the type of *Calopteron amplipennis*, Macl., from New Guinea; it is quite an ordinary *Trichalus* with the subsutural costa trifurcate and prothorax triareolate.

‡ Except in *insignis*.

§ Except in *bifurcatus*.

DD. Prothorax partly or entirely pallid.
E. Antennae flabellate in the male.
b. More than half of elytra black. *semiatratus*, n. sp.
bb. Less than half of elytra black. *flabellicornis*, n. sp.
EE. Antennae not flabellate in the male.
F. Elytra black except at extreme base . . . . . *atripennis*, Macl.
FF. Elytra black except at apex . *apiciflavus*, n. sp.
FFF. Elytra black at base and apex . . . . . *angulicollis*, Fairm.
FFFF. Elytra more or less infuscate along disc . . . . *ampliatus*, Wat.
FFFFF. Elytra black at apex, or entirely pallid.
G. Curvature of sides of prothorax not interrupted in middle . . . . . *griffithi*, n. sp.
GG. Curvature interrupted.
H. Apex of prothorax not notched in middle. . *flavopictus*, Wat.
HH. Apex of prothorax notched in middle.
I. Disc of prothorax more or less dark . . . . *nubicollis*, Fairm.
II. Prothorax entirely pallid.
J. Sterna pallid . . . *sulcatus*, Wat.
JJ. Sterna dark.
K. Posterior angles of prothorax moderately acute. . . *angustulus*, Macl.
KK. Posterior angles very acute . . *froggatti*, Macl.

TRICHALUS AMPLIATUS, Wat., Trans. Ent. Soc. Lond., 1877, p. 83, Pl. II, figs. 97–101; Ill. Typ. Col., p. 67, Pl. XVI, figs. 7–7*a*; Blackb., T.R.S., S.A., 1900, p, 52.*

auritus, Lea, P. L. S., N.S.W., 1893, p. 600.
distinctus, Lea, *l. c.*, p. 602.

* Mr. Blackburn thought it possible that this species was also *ochraceus*, Dalm.; but I can quite agree with a previous note of his in which he states that it is not even possible to place *ochraceus* generically.

This species varies considerably in size and markings. The prothorax is sometimes pallid across the entire apex, but usually the black is continuous to the extreme apex, sometimes but very narrowly so, however. Sometimes the elytra are entirely pallid except for a slight longitudinal infuscation; sometimes there is a distinct longitudinal black patch, which affects the costae or not. Waterhouse gives the size as from 4½ to 6 lines, the specimens before me range from 4¼ to 7 lines. Both of the figures (97 in Trans. Ent. Soc. and 7 in Ill. Typ. Col.), given of the prothorax are somewhat misleading.

I regret to state that I have re-described the species under two separate names—*distinctus* * and *auritus*; of these *auritus* may be regarded as representing the small form common in northern New South Wales and Queensland, *distinctus* at first really appears to be distinct, the elytral costae being less sharply contrasted in thickness to the normal form †; the median costa of the basal trident is hardly more distinct than the lateral ones, not (as in the normal form) the only really distinct one of the three; whilst the punctures are more regular, transverse and sharply defined. I am convinced now however that it is deserving of varietal rank at most.

Hab. QUEENSLAND: Moreton Bay, Brisbane, Mount Tambourine; N.S. WALES: Tweed, Richmond and Clarence Rivers, Tenterfield, Dalmorton, Newcastle, National Park, Sydney, Galston; VICTORIA.

TRICHALUS SULCATUS, Wat., Trans. Ent. Soc. Lond., 1877, p. 83, Pl. II, figs. 102–105; Ill Typ. Col., p. 68, Pl. XVI, fig. 8.

A specimen from Bowen in Mr. Simson's collection agrees with the description of this species except that the femora are tipped with black; it agrees also with the figures given except that of the prothorax (101) in Trans. Ent. Soc., but this was evidently wrong,‡ as the median areolet appears as terminating a considerable distance from the apex, whereas the prothorax is described as having "a longitudinal impression reaching nearly from the base to the apex."

* Already commented upon by Mr. Blackburn.

† Mr. Blackburn relied on a somewhat similar character in one of his species.

‡ In the later figure it is correctly drawn.

Two specimens from Somerset agree with the one from Bowen except in having the median areolet of the prothorax slightly wider and the second elytral costa greatly thickened and elevated at the place where it is not parallel with the suture—much more so than in any other species I have seen; but I cannot regard the two forms as belonging to more than one species.

Thinking it possible that *sulcatus* was possibly a synonym or a variety of *serraticornis*, I wrote to Mr. Waterhouse for his opinion, he replied as follows :—" *Trichalus sulcatus* and *T. serraticornis* are quite distinct and my figures are fairly good. We have both sexes of *T. sulcatus*. *T. serraticornis* is a smaller insect, and has a more punctuated thorax. I have only seen the type, which is in poor condition and has lost apex of elytra."

Hab. QUEENSLAND: Brisbane, Port Essington, Bowen, MacKay, Somerset.

TRICHALUS FLAVOPICTUS, Wat., Trans. Ent. Soc. Lond., 1877, p. 82, Pl. II, figs. 92–96; 1878, p. 103; Ill. Typ. Col., p. 67, Pl. XVI, fig. 11.

There are five specimens from N.W. Australia before me which I believe represent a variety of this species, as two females agree exactly in all details of sculpture with a typical specimen from MacKay, whilst the others (males) agree with Waterhouse's description of the male. All five specimens have the discal areolet unclouded and fully half of the femora pallid (not almost only the extreme apex), four of them have the scutellum entirely pallid. The females have the undersurface entirely pallid except that in one of them the four basal segments of the abdomen have an infuscate median blotch; the males have the sterna pallid, in two of them the abdomen (except at the tip) is entirely black, whilst in the third it is dark only along the middle.

Hab. QUEENSLAND: Bowen, Mackay; N.W. AUSTRALIA.

TRICHALUS ATER, Macl. (*Xylobanus*), P.L.S., N.S.W., 1887, p. 233.

Two co-types of this species are before me; the species is certainly a *Trichalus*, having the sutural costa interrupted and irregular at base, the second from the suture

not parallel with the suture on its basal 5th, and the prothorax with a single well-defined and central areolet.

Hab. QUEENSLAND: Barron River, Kuranda.

TRICHALUS FROGGATTI, Macl. (*Xylobanus*), *l. c.*, p. 233.

A co-type of the species is before me; it is certainly a *Trichalus*, although Macleay referred it to *Xylobanus*, and stated that it was possibly a *Bulenides*. The tip of the elytra in all the specimens I have seen is slightly stained black.

Hab. QUEENSLAND: Cairns.

TRICHALUS ATRIPENNIS, Macl. (*Xylobanus*), *l. c.*, p. 234.

I have examined the type of this species; it is a typical *Trichalus*, the sutural costa being trifurcate at base (although only the median arm is distinct), and the prothorax with a single discoidal areolet. Macleay describes the 3rd joint of the antennae as slightly larger than the 4th, apparently having overlooked the true 2nd joint; the true 3rd joint is really a little shorter than the 4th, but the 4th is slightly larger than the 5th. The portion of the elytra concealed by the prothorax is pallid as well as the prothorax itself.

Hab. QUEENSLAND: Barron River, Kuranda.

TRICHALUS ANGUSTULUS, Macl. *l. c.*, p. 235.

A specimen (probably from the vicinity of Cairns) before me agrees with the description of this species except that it is slightly larger (4 lines), and that the extreme apex (and sides near apex) of elytra, are slightly infuscate. Mr. Masters informs me that in the type the apex is not infuscate, but this is probably a character subject to variation. In appearance it is very close to *froggatti*, but it has the prothorax considerably less narrowed in the middle and the posterior angles much less acute; features at once noticed when specimens of the two species are placed side by side.

Hab. QUEENSLAND: Barron River.

TRICHALUS ANGULICOLLIS, Fairm. (*Xantheros*), Pet. Nouv. Ent., 1877, II, p. 167; Journ. Mus. Godeff., 1879, p. 100.

A specimen, in Mr. Simson's collection from Bowen, differs from the type in being slightly larger (9½ as against

8½ mm.). Another from Thursday Island, in the Macleay Museum, has the prothorax entirely pallid. The species is a typical *Trichalus.*

Hab. QUEENSLAND: Brisbane, Bowen, Port Denison, Thursday Island.

TRICHALUS SEMICOSTATUS, Blackb. (*Metriorrhynchus*), P. L. S., N.S.W., 1891, p. 525; T. R. S., S.A., 1900, p. 51.

Raymondi, Lea, P. L. S., N.S.W., 1893, p. 600.

A specimen from Forest Reefs differs from the type of *Raymondi* in having the head entirely dark. The antennae may possibly reach quite to the middle of the elytra, although they do not appear to me to extend quite so far, but there is no doubt as to *raymondi* being a synonym of *semicostatus* with the description of which I did not check it, owing to that species being referred to *Metriorrhynchus.*

The species is very close to *discoideus,* which, however, always has the disc of the elytra more or less infuscate; the shape of the central prothoracic areolet appears to be somewhat different.

Hab. VICTORIA: Alpine District; N. S. WALES: Mount Kosciusko, Forest Reefs.

TRICHALUS FUNEREUS, Blackb., T. R. S., S.A., 1900, p. 51.

A specimen of this species is in the National Museum from Loutit Bay. I have seen two other specimens from Victoria (one in the National, the other in the Macleay Museum) which in size, colour and general appearance exactly resemble this species, but which belong to one of the numerous varieties of *Metriorrhynchus rufipennis.*

Hab. VICTORIA: Dividing Range, Loutit Bay.

SERRATICORNIS, Fab. (*Lycus*), Sept. Ent., p. 203; Oliv., Ent. II, p. 12, Pl. I, fig, 14; Boisd., Voy. Astr., p. 124; Wat., Trans. Ent. Soc. Lond., 1877, p. 82, Pl. II, figs. 106–108.

Hab. AUSTRALIA.

DISCOIDEUS, Er. (*Porrostoma*), Wiegm. Arch., 1842, I, p. 145; Wat., Trans. Ent. Soc. Lond., 1877, p. 82, Pl. II, figs. 106–108.

Hab. TASMANIA (widely distributed); VICTORIA: Loutit Bay.

NUBICOLLIS, Fairm. (*Xantheros*), P. N., 1877, II, p. 167; J. M. G., 1879, p. 99.

Hab. QUEENSLAND: Peel Island.

OCHREATUS (*Xantheros*), Fairm., P. N., 1877, II, p. 167; Journ. Mus. Godeff., 1879, p. 99.

Hab. N.S. WALES: Sydney.

INSIGNIS, Lea, P.L.S., N.S.W., 1874, p. 601. (*Fig.* 89.)

Hab. N.S. WALES: Armidale.

TRICHALUS BIFURCATUS, n. sp.

♂. Black; base apex suture and margins of elytra red and, to a less extent, the three discal costae on each.

Antennae passing middle of elytra, strongly serrate, 2nd joint distinct from above, 3rd very slightly longer than 4th. *Prothorax* shining, feebly transverse, 3-areolate; apex and apical angles rounded; sides feebly and irregularly increasing in width to base; basal angles acute and obliquely produced. *Scutellum* depressed, sides increasing in width to apex—which is semicircular. *Elytra* long and narrow, slightly diminishing in width to base and apex; tricostate (quadricostate at base), the interspaces with double series of subquadrate punctures, each separated by rather small ridges; the smaller sutural ridge or costa bifurcate at base, dividing the punctures into three rows. *Abdomen* with the penultimate segment feebly emarginate in middle of apex.

Length 10 mm.

Hab. TASMANIA: Huon River.

The general appearance somewhat like a small specimen of *discoideus*, but with the sutural costa bifurcate (instead of trifurcate) at base; a character which will readily distinguish it from all previously described species.

TRICHALUS SEMIATRATUS, n. sp. (*Fig.* 27.)

♂. Black; prothorax scutellum and basal two-fifths of elytra flavous.

Eyes very large. *Antennae* strongly flabellate, extending to about one-third from apex of elytra; 2nd joint distinct, 3rd slightly longer than 4th, its ramus about twice the length of itself, of the others each is more than twice as long as the supporting joint; 11th more than twice the length (excluding its ramus) of 10th. *Prothorax*

moderately transverse ; 3-areolate ; apical angles somewhat obtuse, apex itself produced in middle, basal angles obliquely produced and subacute ; sides and apex strongly punctate ; median ariolet continuous to base and apex, but its walls highest in middle. *Scutellum* transverse, slightly increasing in width to apex, which is rather feebly emarginate. *Elytra* narrow, parallel-sided ; each tricostate (at base quadricostate), the interspaces each with two regular rows of rather large rectangular punctures separated by small ridges, sutural costa trifurcate towards base, with its middle arm much thickened at base. *Abdomen* with the penultimate segment semi-circularly and not deeply excised.

Length 11 mm.

Hab. QUEENSLAND: Kuranda (type in H. H. D. Griffith's collection).

In colour this species closely resembles *M.* (*Xylobanus*) *ampliatus*, Macl. ; but the two species have scarcely anything else in common. The two colours are sharply defined at about the middle of the body. This and the following are the only species of *Trichalus* yet known in which the antennae are supplied with long rami ; these are very long and thin, that on the 3rd joint is placed nearer its base than apex, in the others it is gradually extended along so that on the 10th it is placed nearer the apex than the base. The rami are so thin that in the specimen before me they have become more or less twisted in drying up.

TRICHALUS FLABELLICORNIS, n. sp. (*Figs.* 28, 29.)

♂. Black ; prothorax (in places infuscate), scutellum and basal two-thirds of elytra testaceous.

Eyes very large. *Antennae* strongly flabellate, extending to black portion of elytra, 2nd joint distinct, 3rd slightly longer than 4th, its ramus about once and one-half its own length ; of the 4th–9th almost or more than twice the length of the joint. *Prothorax* and *elytra* much as in the preceding species except that the prothorax has the anterior angles less obtuse, the apical portion more produced, the posterior angles more acute and the median ariolet rather suddenly narrowed in front ; the elytra are almost exactly the same. *Abdomen* with the penultimate segment rather more narrowly (but not so deeply) excised than in the preceding species.

Length 12 mm.

Hab. QUEENSLAND: Brisbane (type in R. Illidge's collection).

There are several large dark blotches on the disc of the prothorax, and the posterior angles are also dark. The antennal rami, although very long, are considerably shorter than in the preceding species, and their positions are not the same, that on the 3rd joint being distinctly nearer the apex than the base. As in other species having long antennal rami the edges of these are often peculiarly serrated or jagged. In the specimens before me of the preceding species all the costae (except of course the short scutellar one) are continuous to the apex; in the specimen described above the 1st and 2nd continuous costae become united close to the apex; but this character is subject to so much individual variation in other species that I attach no importance to it whatever.

TRICHALUS GRIFFITHI, n. sp. (*Fig.* 90.)

♂. Black; prothorax, scutellum, basal three-fifths of elytra and trochanters testaceous.

Head highly polished. Eyes very large. Antennae not much shorter than the body; 2nd joint distinct, 3rd–10th each slightly produced at tip, and almost twice as long as wide, 3rd distinctly longer than 4th, the others gradually decreasing in length, but 11th as long as 3rd. *Prothorax* apparently longer than wide, but really (by measurement at base) slightly transverse; 3-areolate, median areolet deep and very distinct, but its outer walls not sharply defined, joined to the apex by a feeble shining carina; apex obtusely rounded; sides gently and continuously emarginate; base much wider than apex, with the posterior angles obliquely produced and very acute. *Scutellum* transverse, sides dilated towards apex, which is feebly emarginate. *Elytra* narrow, almost parallel-sided; each tricostate (at base quadricostate), the interspaces with somewhat irregular double rows of rounded punctures (which are separated by small ridges); at base scutellar costa trifurcate, but only the middle arm distinct. *Abdomen* with the penultimate segment rather deeply excised.

Length 6½ mm.

Hab. QUEENSLAND: Herbert River (type in H. H. D. Griffith's collection), Wide Bay (Australian Museum).

On the type the apical dark marking is oblique, being wider on the margins than at the suture; although very distinct it is not sharply defined.

A specimen in the Macleay Museum (from the Endeavour

River) differs in being larger (7½ mm.), with the darker parts lightly infuscate instead of blackish.

TRICHALUS APICIFLAVUS, n. sp.

♀. Black ; sides of prothorax and apical third of elytra flavous.

Head highly polished. Antennae extending to middle of elytra ; 2nd joint moderately distinct, 3rd–11th all longer than wide, serrate, 3rd slightly shorter than 4th. *Prothorax* transverse, apex feebly notched in middle, posterior angles acute and obliquely produced ; 3-areolate, the discal areolet connected with the apex by a short broad carina. *Scutellum* tranverse, strongly depressed, apex feebly emarginate. *Elytra* narrow, sub-parallel, tri- (at base quadri-costate ; the interstices wide, with double rows of regular, large, transverse punctures, with the smaller longitudinal and the transverse ridges of almost equal size ; sutural costa trifurcate towards base, with only the middle arm distinct.

Length 11 mm.

Hab. N. S. WALES : Sydney (*W. W. Froggatt*).

Allied to *funereus*, from which it can be readily distinguished by the pallid prothoracic margins. The only specimen before me is very dingy, but as it was taken in 1889 this is probably due to its age.

Genus DUMBRELLIA, n. g.

Head concave, without a distinct rostrum. Eyes very large. Antennae serrate, second joint moderately distinct. *Prothorax* rounded in front and projecting over the head (which is almost concealed by it). *Elytra* long and flat, sides sub-parallel ; with fairly large punctures, in rows separated by moderately distinct costae. *Legs* and *palpi* much as in *Metriorrhynchus*.

I have to propose this genus for two species previously referred by me to *Calochromus*; from which genus, however, they are evidently distinct by the partially concealed head, much larger eyes, strong elytral punctures and flat legs. From *Metriorrhynchus* and *Trichalus* they are separated by the prothorax not divided into distinct areolets but with deep depressions (much as in *Calochromus*) and by the much smaller elytral punctures, the costae separating which are not distinctly alternately elevated. In Waterhouse's revision of the *Lycides* the only genus to which they could possibly be referred is *Melampyrus*; but I hesitate to refer them to that genus as its two species

are from Sarawak and Penang, and have the alternate costae of the elytra evidently strongly elevated.

The figure of *Dihammatus cribripennis* (Ill. Typ. Col., Plate VII, fig. 6) will give a good general idea as to the shape of both the species.

BREVICORNIS, Lea (*Calochromus*), P. L. S., N.S.W., 1898, p. 561.

N. S. WALES: Galston.

PILOSICORNIS, Lea (*Calochromus*), *l. c.*, p. 562.

QUEENSLAND: Barron Falls.

Genus CALOCHROMUS, Guér., Ann. Soc. Ent. Fr., 1833, p. 158; Lacord., Gen. Coleopt., IV, p. 302; Wat., Trans. Ent. Soc. Lond., 1878, p. 96; Ill. Typ. Col., p. 2; Blackb., P. L. S., N.S.W., 1891, p. 528; T. R. S., S.A., 1900, p. 58.

This genus is readily distinguished from the other Australian *Lycides* by the uncovered head, the prothorax transversely oblong and deeply impressed in places but not divided into distinct areolets, and by the elytra without large punctures. In the male the head is sometimes armed with a curved, beak-like process, which projects over the muzzle. Two species (*brevicornis* and *pilosicornis*) previously referred by me to *Calochromus* are now referred to a new genus (*Dumbrellia*).

The following species are unknown to me:—

Distinguendus, Fairm. This should be very distinct as its markings (prothorax entirely pallid, elytra black except for a small part of the base, etc.) are very different from those of all the Australian species hitherto described.

Rostratus, Blackb. This species has the head unarmed and is evidently something like *guerinii*, but it has a short rostrum and the elytra entirely pallid.

The others may be tabulated as follows:—

A. Head armed in the male.
  a. Prothorax partly red . . . . . *mastersi*, n. sp.
  aa. Prothorax entirely dark.
    b. Elytral markings widened posteriorly . . . . . *simillimus*, Blackb.

bb. Elytral markings narrowed posteriorly.*
c. Markings covering more than half of the elytra . . . *cucullatus*, Blackb.
cc. Markings covering but a small portion of the elytra *scutellaris*, Er.
AA. Head unarmed in both sexes.
B. Prothorax partly red . . . . . *guerinii*, Macl.
BB. Prothorax entirely dark.
C. Elytra dark at apex
d. Elytral costae indistinct, apical markings regular . *amabilis*, Lea.
dd. Elytral costae distinct, apical markings irregular . . . *basalis*, Wath.
CC. Elytra of uniform colour.
D. Antennae of male as long as body . . . . . *dentipes*, n. sp.
DD. Antennae of both sexes shorter than body.
E. Median prothoracic sulcus dilated in middle . . . . . *insidiator*, Fairm.
EE. This sulcus parallel-sided . . . . . *minor*, n. sp.

CALOCHROMUS SCUTELLARIS, Er. (*Anarhynchus*), Wiegm. Arch., 1842, p. 146; Wat., Cist. Ent., II, p. 195; Trans. Ent. Soc. Lond., 1877, p. 84, t. II, figs. 113–115; Ill. Typ. Col., p. 2.

Bremei, Le Guill., Rev. Zool., 1844, p. 221.

? *nodicollis*, Bourg., Ann. Soc. Ent. Fr., 1883, p. 63, Pl. IV, figs. 1–1*a*.†

* This will not include the variety of *scutellaris* noted below.

† I sent a specimen of a species which appeared to agree with Erichson's description of *scutellaris* to my valued correspondent Mons. Bourgeois, telling him that it seemed also to agree with his description of *nodicollis*. In reply he stated: "The *Calochromus* is my *nodicollis* male, but not *scutellaris*, Er.; the two species are very different, I have seen the type of *scutellaris* at the Museum at Berlin. Its epistome is not triangularly notched as in both sexes of *nodicollis* but cut straight off in front." After his description of *nodicollis* he states that, "At first sight this remarkable species singularly recalls *C. scutellaris*. It is removed, however, from all its congeners by the profound emargination of the epistome, which causes the labrum

All the Tasmanian specimens (with one exception) which I have seen, have the dark markings about the scutellum continued very narrowly along the suture to about the middle. In an occasional specimen (especially when of large size) the black marking is continued along the suture almost to the apex. The exception (in Mr. H. H. D. Griffith's collection) is from Sheffield and has the elytra entirely red except for a small almost circular dark apical patch common to both elytra. It is true that Waterhouse says of *scutellaris*, "Elytra rusty red, sometimes with the apex black," but his specimens (from the "Swan River and N.W. Coast") in all probability belonged to the species he subsequently described as *basalis*.

In size the species varies from 9 to 17 mm. In the female the projecting spine is represented by a small tubercle at most, and the base of its head is very lightly (instead of deeply) longitudinally impressed.

I have not seen the references in Cist. Ent. and Rev. Zool.

Hab. TASMANIA (widely distributed); VICTORIA: Gisborne, Studley Park.

CALOCHROMUS BASALIS, Wat., Cist. Ent., 1877, p. 196; Ill. Typ. Col., p. 2, Pl. I, fig. 2.

Of this species I have a pair taken *in cop.*; the female has palpi as in Waterhouse's first section of the genus, the male as in his second section.* The male differs also from the female in being longer and thinner with considerably longer and thinner antennae. In all the specimens I have seen the apex of the elytra has a

to be entirely uncovered; the existence of a frontal spine in the male also constitutes an interesting character hitherto unrecorded in the genus *Calochromus*." The beautiful figures he gives leave no doubt as to the species described by Mons. Bourgeois, and despite the above statements I am still inclined to believe it to be *scutellaris*. At any rate it is the only species known to me from Tasmania, is common, and agrees exactly with Erichson's description. Some specimens before me certainly differ from the normal form in colour and size but not in sculpture. If the supposed differences really do exist there must be two distinct species, but it is to be noted that the shape of the epistome is by no means readily seen, except from certain directions, even in fresh specimens, and could easily become obscured by dust or grease.

* The sexual variation of the palpi has already been commented upon by Mr. Blackburn.

purplish gloss* much as in *amabilis*; the two species, however, are abundantly distinct, differing in the antennae, elytral costae, etc.

Hab. W. Australia; Swan River, Mount Barker, Darling Ranges, Beverley.

Calochromus insidiator, Fairm., Journ. Mus. Godeffr., 1879, p. 101.

This species belongs to a group of which there are several closely allied species, and as the sex of his specimen was not mentioned by Fairmaire, and the antennæ are not mentioned other than that they are "*corpore paulo brevioribus*," there is some difficulty in positively identifying it.

The specimens which at present I refer to it vary from 8 to 9 mm. (the type being 8½ mm.) in length, with shape and sculpture much as in *basalis*, and the antennae varying sexually much as in that species but distinctly stouter in both sexes.

In his description Fairmaire says, "*Capite tenuissime strigosulo.*" In the above noted specimens the head at a glance appears to be very finely strigose, but this appearance is entirely due to the sparse pubescence with which it is clothed, and a similar appearance may be noted in other species, especially when the hair has been plastered down.

Hab. N.S. Wales: Sydney, Forest Reefs, Hunter River; Victoria; S. Australia, Adelaide.

Calochromus cucullatus, Blackb., T. R. S., S.A., 1900, p. 56.

A male from Victoria in Mr. C. French's collection is rather larger (6 lines) than Mr. Blackburn's largest specimen. Its front femora are armed beneath with a number of small teeth on their lower surface, but these are very small and indistinct.

Hab. Victoria: Dividing Range, Loutit Bay.

* In fact, in all the species I have seen the dark elytral markings have a more or less purplish gloss.

GUERINII, Macl., Trans. Ent. Soc. N. S. Wales, II, p. 263; Wat., Cist. Ent., II, 1877, p. 196; Fairm., Journ. Mus. Godeffr., 1879, p. 101; Bourg., Ann. Mus. Civ. Gen., 1889, p. 290; Lea, P. L. S., N.S.W., 1898, p. 562. *discicollis,* Fairm., Pet. Nouv. Ent., 1877, II, p. 174; Journ. Mus. Godeffr., 1879, p. 101.

QUEENSLAND: Gayndah, Rockhampton, Brisbane; N. S. WALES: Tweed and Richmond Rivers.

DISTINGUENDUS, Fairm., Ann. Soc. Ent. Belg., 1883, p. 21; Bourg., Ann. Mus. Civ. Gen., 1889, p. 291.

QUEENSLAND: Somerset.

SIMILLIMUS, Blackb., T. R. S., S.A., 1900, p. 57.

S. AUSTRALIA: Adelaide; N. S. WALES: Mount Brown, Blue Mountains.

ROSTRATUS, Blackb., *l. c.*, p. 58.

S. AUSTRALIA: Yorke's Peninsula.

AMABILIS, Lea, P. L. S., N.S.W., 1898, p. 560.

N. S. WALES: Sydney, Blue Mountains, Forest Reefs.

CALOCHROMUS MASTERSI, n. sp.

♂. Black; prothorax (a large medio-basal spot black) and elytra (a rather small apical spot, common to both, black) reddish-testaceous.

Head highly polished, grooved along middle; armed with a strong, sharp, beak-like process. Antennae fairly stout, extending to about one-third from apex of elytra, joints scarcely compressed. *Prothorax* transversely oblong, with a deep median somewhat pyriform sulcus, sides deeply impressed at base and apex, the impressions connected by a curved depression. *Scutellum* subquadrate. *Elytra* comparatively narrow, each with four distinct costae, between which are feeble elevations; densely punctate. *Abdomen* with penultimate segment feebly emarginate. Anterior *femora* moderately stout, unarmed.

Length 8½ mm.

Hab. N. S. WALES (Macleay and National Museums). In appearance very much like *guerini,* but the head armed in the male.

A female, evidently belonging to this species, is in the National Museum; it differs in having the head unarmed, antennae shorter, and the prothoracic spot connected with apex as well as with base.

CALOCHROMUS DENTIPES, n. sp.

♂. Black; elytra reddish-testaceous.

Head highly polished, unarmed, grooved along middle, the groove becoming foveate between eyes. Antennae extending to apex of elytra, joints subcylindrical and rather thin. *Prothorax* transversely suboblong, deeply impressed in middle, the impression slightly widening to base, sides deeply impressed at base and apex, the impressions obscurely connected. *Scutellum* subquadrate, depressed along middle. *Elytra* rather narrow, each with four distinct costae, of which, however, the 1st (from the suture) is most and the 3rd and 4th least distinct towards the base, interspaces feebly elevated; densely punctate. *Abdomen* with penultimate segment widely and rather deeply excised. Anterior *femora* stout, each armed beneath with a rather strong but obtuse tooth and with a few small granules.

Length 8–13 mm.

♀. Differs in being wider, antennae stouter and much shorter, the head not grooved at the base (but the foveate expansion between the antennae present), the prothorax rather wider at the base and the abdomen and femora simple.

Length 9½ mm.

Hab. QUEENSLAND: National Museum, Brisbane (*E. Jefferis Turner*); N. S. WALES: Blue Mountains (*Messrs. Taylor*), Wollongong (*A. M. Lea*).

In general appearance close to *scutellaris*, but the head of the male unarmed. From *insidiator* (also with the head unarmed in the male) its much larger antennae and narrower form will readily distinguish it; the female in fact is much the build of the male of that species, and has antennae fully as long.

CALOCHROMUS MINOR, n. sp.

♀. Black; elytra reddish-testaceous.

Head polished, deeply impressed between antennae. Antennae short (not extending to middle of elytra) stout, subcylindrical; 2nd joint almost half the length of 3rd, 10th almost as wide as long. *Prothorax*, *scutellum*, and *elytra* much as in the preceding species except that the median sulcus of the prothorax is parallel-sided, deep on its basal and shallow on its apical half.

Length 5–5½ mm.

Hab. N. S. WALES: Armidale (*W. W. Froggatt*), Sydney (*H. J. Carter*); QUEENSLAND: Mackay (*C. French*),

A specimen from Brisbane in Mr. Illidge's collection, which I believe to be the male, differs in being narrower, the antennae thinner and longer with the 10th joint more than thrice as long as wide; the head (which is unarmed) with a narrower impression connecting the inter-antennal impression with the base; the anterior femora, stouter and the penultimate segment of abdomen rather deeply semicircularly emarginate.

In general appearance much like the preceding species and *insidiator*; from the former it differs in being much smaller, the antennae shorter and stouter, femora unarmed in the male (if the male is correctly identified, as I think it is), besides the differences as noted above; from the latter species (of which at first the specimens appear to be very small examples) it can be distinguished by its rather narrower form and median prothoracic impression (in *insidiator* this is distinctly deepest and widest in the middle in both sexes); the end joint of its antennae is also differently proportioned.

SUBFAMILY LAMPYRIDES.

Genus Luciola,* Cast., Ann. Soc. Ent. Fr., II, p. 146; Lacord., Gen. Coleop., IV, p. 335; Olliff, P. L. S., N.S.W., 1889, p. 652.

The Australian fireflies have been referred to two genera, but I have doubts as to the propriety of regarding *Atyphella* as more than a slight subgenus of *Luciola*. It is to be noticed that the shape of the terminal segments of the abdomen do not bear out the theory of generic distinction. In the only female of *Atyphella* (*lychnus*) that I know, the penultimate segment of the abdomen is much as in *L. humilis*, *flavicollis* and *platygaster*, whilst the two apical segments are much alike in the males of *A. scintillans*, *lychnus*, *brevis* and *L. pudica*; but these do not resemble the same segments in *L. flavicollis*, *humilis* and *cowleyi* (which are all much alike) and *platygaster* is again very different. In *Atyphella*, however, the front angles of the prothorax are much more rounded than in *Luciola*.

Germar redescribed in his "Insektenfauna von Adelaide," *Lampyris marginipennis*, Guér., and *L. striata*, Fab., referring them both to *Colophotia*; in Masters' Catalogue

* For full synonymy of this genus see Lacordaire.

striata is placed in *Luciola* and recorded from S. Australia; *marginipennis* being omitted. Both, in fact, are not Australian; the latter was recorded as being "Trouvé à Offak, Terre des Papous," * the former as having its "Habitat in Insulis maris pacifici." As to Germar's specimens, he gives no indication as to where they were from, but they were certainly not S. Australian, it is possible of course that he had access to and re-described the types.

Quite recently Mons. Olivier has given a "Catalogue synonymique et Systématique des Espèces de *Luciola* et Genres Voisins" in which nine species † are recorded as Australian but the genus *Atyphella* was overlooked; his *decora*, however, is certainly Olliff's *Atyphella scintillans*. I have not seen the work in which the catalogue appears, but a reprint (for which I am indebted to Mons. Oliver) is marked as having been abstracted from the "Revue scientifique du Bourbonnais et du Centre de la France," for May, 1902.

The only living fireflies I have seen belong to *Atyphella lychnus*, and I did not examine their eyes when fresh; but in three species (*L. flavicollis, humilis* and *A. brevis*) recently received in spirits from Mr. Allen, the eyes, before the bodies dried up, were of a deep metallic-blue; these, however, changed to black on the bodies drying up.

The species of *Luciola* before me may be tabulated as follows:—

A. Prothorax partly dark	*cowleyi*, Blackb.
AA. Prothorax entirely pale.	
B. Elytra partly pale	*flavicollis*, Macl.
BB. Elytra entirely dark.	
C. Metasternum pale	*pudica*, Oll.
CC. Metasternum dark.	
D. Male with apical segment of abdomen strongly produced in middle only.	*humilis*, Oliv.
DD. Male with this segment produced at sides as well as in middle .	*platygaster*, n. sp.

* I cannot find this place on any modern map. (The locality is in all probability Mount Arfak, in the north-western peninsula of New Guinea.—J. J. W.)

† Several of these are here regarded as synonyms.

Luciola australis, Fab. (*Lampyris*), Syst. Ent., p. 201; Boisd., Voy. Astr., II, p. 125; Pl. VI, fig. 13; Gorham, Trans. Ent. Soc. Lond., 1880, p. 104.

guérini, Cast., Essai, p. 151, note.

nigripennis, Latr., Dej. Cat., 3 ed., p. 116.

The original description of this species is both brief and contradictory. It is first described as "*capite elytrisque fuscis*"; then "*Caput atrum . . . Elytra nigra.*" It may quite possibly have been founded upon specimens of *pudica*, as it is further described as "*Subtus flavicans, abdominus ultimis segmentis flavissimis.*" (This alone will readily distinguish it from *humilis* and *platygaster*.)

As Boisduval described the abdomen as "jaune ou d'un jaune roussâtre avec le quatrième segment d'un brun noirâtre," I think it extremely probable that the species described by him as *australis* was really not that species; especially as his specimen was from New Ireland, whilst the Fabrician type was taken by Banks in New Holland.

In Masters' catalogue, *guérini* and *nigripennis* are given as synonyms of *australis*. The description of *guérini* I have not seen, but *nigripennis* is a catalogue name only.

Hab. New Holland.

Luciola dejeani, Gemm., Col. Heft., VI, 1870, p. 120; Oll., P. L. S., N.S.W., 1889, p. 658.

Lampyris apicalis, Boisd. (*n. pr.*), Voy. Astr., II, p. 127; Dej., Cat., 3 ed., p. 116.

The specimen identified by Olliff as *apicalis* is a large and distinct species with one-fifth of the apex of the elytra dark. I have seen nothing else like it.

Hab. Australia: Victoria River Expedition.

Luciola cowleyi, Blackb., T. R. S., S.A., 1897, p. 34.

Readily distinguished by the dark disc of its prothorax and by each elytron having several distinct costae. In general appearance, except as to its exposed head, it resembles the species of *Atyphella*.

Hab. N. Queensland.

Luciola humilis, Oliv., Nov. Zool., III, 1896, p. 2. (*Figs.* 89, 99.)

Only the male was known to Olivier; the female differs in being slightly larger and wider, head with much smaller

eyes, the space between which is only slightly concave, abdomen with only one white segment and the following one widely and gently emarginate. The colour of the abdomen in both sexes is much as in *flavicollis*.

Hab. QUEENSLAND: Cairns, Kuranda, Bowen, Port Denison.

LUCIOLA FLAVICOLLIS, Macl., Trans. Ent. Soc., N. S. Wales, II, p. 263; Olliff, P. L. S., N.S.W., 1889, p. 653.

var. *gestroi*, Oliv., Ann. Mus. Civ., Genoa, 1885, p. 336, Pl. V, fig. 10.

coarcticollis, Oliv., Ann. Soc. Ent. Fr., 1888, p. 59, Pl. I, fig. 9.

The elytra of this species are very variable and might be regarded as either flavous with a dark (never black) discal patch of variable size on each, or as dark (in the male they are usually much darker than in the female) with the suture * and sides (to a variable extent) pale, and often pale for a considerable space at the base at well. Olliff has well described the sexual characters. The size varies from 4 to 6½ mm.

I have no doubt whatever but that the description of *gestroi* was drawn up from a quite common variety of this species.

The description of *coarcticollis* reads remarkably like as if it belonged to *flavicollis*, except that the prothorax is described as "*quadrato*," whilst in *flavicollis* it is quite strongly transverse. No mention is made of the abdomen in the description. It is recorded from Victoria but the specimen was probably received from a Victorian naturalist, as I believe the genus is entirely absent from Victoria. The figure given would do very well for *flavicollis*.

Hab. QUEENSLAND: Gayndah, Rockhampton, Somerset, Port Curtis, Port Denison, Mount Dryander, Bowen, Cairns; S. AUSTRALIA: N. Territory; N.W. AUSTRALIA.

LUCIOLA PUDICA, Olliff, P. L. S., N.S.W., 1889, p. 652. (*Fig.* 100.)

The female differs from the male in having an obtusely triangular apical segment of abdomen, with the preceding one moderately emarginate.

Hab. QUEENSLAND: Bowen, Port Curtis; N. S. WALES.

* Occasionally the suture is dark except at the basal third.

LUCIOLA PLATYGASTER, n. sp. (*Figs.* 101, 102.)

♂. Blackish; prothorax, scutellum, mesosternum, trochanters and four front coxae more or less flavous; two apical segments of abdomen whitish throughout.

Head large, deeply impressed along middle. Eyes very large, occupying about two-thirds of the lower surface of head and less of the upper. Antennae passing hind coxae. *Prothorax* about twice as wide as long, sides gradually dilated to near apex, apex produced in middle, all the sides margined; densely and coarsely punctate; disc irregular. *Elytra* scarcely wider than prothorax; densely, rugosely and moderately coarsely punctate, and with traces (two on each) of very feeble costiform elevations. Two apical *segments* of abdomen large and wide, the apical one terminated by three large lobes, of which the median one is somewhat larger and just perceptibly shorter than the others, at its base is a subfoveate impression.

Length, 7 mm.

♀. Differs in being larger (7½ mm.), head smaller, and very feebly depressed between eyes, these also smaller; abdomen with only one white segment and the following one almost semicircularly emarginate.

Hab. QUEENSLAND: Cairns (Macleay Museum).

The colour of the under surface will readily distinguish from *pudica* and the description of *australis*. From *humilis* the shape of the apical segment of the abdomen in the male and the much more deeply emarginate segment of the female will readily distinguish it. In the males of both species, as also in *flavicollis*, the female appears to have a short triangular supplementary segment.

Genus ATYPHELLA, Olliff, P. L. S., N.S.W., 1889, p. 645.

The species of this genus or subgenus are all Australian, and may be tabulated as follows:—

A. Elytra entirely dark . . . . . *scintillans*, Oll.
AA. Elytra not entirely dark.
  B. Size comparatively large . . . . . *flammans*, Oll.*
  BB. Size comparatively small.
    C. Elytra parallel-sided . . . . . *lychnus*, Oll.
    CC. Elytra with rounded sides . . . . . *brevis*, n. Sp.

* I have examined the type of this species and it certainly appears to be a good one, but Olliff's remarks that "This species is conspicuous by the striped appearance of its elytra, and the black patch on its prothorax" does not serve to distinguish it from *lychnus*.

LYCHNUS, Olliff, P. L. S., N.S.W., 1889, p. 647.

Hab. NEW SOUTH WALES: Blue Mountains, Jenolan, Mount Wilson, Sydney, Kiama.

SCINTILLANS, Olliff, *l. c.*, p. 650; *decora*, Oliv. (*Luciola*), Revue Sc. Bourbonnais, p. 77 (1902).

Hab. NEW SOUTH WALES: Upper Hunter and Clarence Rivers, Newcastle.

FLAMMANS, Olliff, *l. c.*, p. 651. QUEENSLAND: Cloncurry.

ATYPHELLA BREVIS, n. sp. (*Fig.* 103.)

♂. Pale flavous; head, part of metasternum and the abdomen (two apical segments white) black; antennae, legs (in parts excepted) and elytra (suture sides and costae excepted) infuscate; an infuscate irregular spot on the apical portion of prothorax. Rather densely clothed with short pubescence.

Head large, deeply excavated between the eyes, the excavated space shining. Eyes large, partially visible from above. Antennae very little longer than the width across eyes. *Prothorax* about thrice as wide as long, apex slightly produced, sides rounded, front angles strongly rounded, with dense and moderately large punctures. *Scutellum* densely punctate, apex rounded. *Elytra* widest at about the middle, sides rather strongly rounded, with dense punctures, rather smaller and deeper than those on prothorax; each with the suture and side strongly raised and three very prominent costae and traces of another.

Length 6–6½ mm.

Hab. QUEENSLAND: Atherton (*E. Allen*).

In general appearance rather close to some males of *lychnus* but shorter and wider; elytra not parallel-sided and with much more prominent costae; eyes much larger (they are, however, no larger in proportion to the head), partially visible from above, and the space between them much more largely excavated. Its much smaller size readily distinguishes it from *flammans*. Mr. Allen sent me twelve males but no females, and wrote me that "These were obtained from the vicinity of Atherton, about 2,600 feet up, and inhabiting the dense scrubs of that district, distant about 65 miles from Cairns."

This species and *Luciola cowleyi* might fairly be regarded as linking *Atyphella* and *Luciola* together.

SUBFAMILY TELEPHORIDES.

Genus TELEPHORUS,* Schaffer, Elem. Entom., Tab. 123; Lacord., Gen. Coleop., IV, p. 353; Blackb., T. R. S., S.A., 1886, p. 259.

This genus is rather numerously represented in Australia, and some of the species (*nobilitatus* and *pulchellus* especially) are to be seen in countless thousands. The species are all of large or medium size, but many are subject to great variation, especially in the males. A number of very small species have been referred to the genus, but these are here referred to *Heteromastix*. Little reliance is to be placed upon the prothoracic impressions as these are subject to considerable alteration on the insects drying up, the irregular contraction even appearing at times to alter the outlines.

In the females of both this genus and *Selenurus* the penultimate segment of the abdomen is semicircularly emarginate on each side, with a median (and sometimes acutely pointed) lobe between. The male has a narrow excavation only, but the preceding segment is also widely emarginate.

The Rev. T. Blackburn thinks it possible that *pulchellus* and other Australian species are really not congeneric with the European species of *Telephorus*. I am not prepared to go into this question, but regard all the species here noted or described as being congeneric with *pulchellus*.

It is remarkable that three of the species are apterous; of these one is from Lord Howe Island, and the theory advanced that species inhabiting small islands are apt to either become apterous or to develop very strong wings, may hold good in this case; but this theory will not account for the two other species, one of which is distributed over the whole width of the Australian continent.

There are several species before me which do not agree exactly with any of the published descriptions, but as they are allied to *mastersi* and as that species and several of its allies are variable in colour I have not ventured to describe them.

The position of *Cantharis australis*, Boisd. (appearing in Masters' catalogue as a *Telephorus*), is very doubtful; I prefer to refer to it at the end with other doubtfu species.

* For full synonymy of this genus see Lacordaire.

The species unknown to me are :—

Tepperi, Blackb.—Evidently belonging to the *mastersi* group as the prothorax is "half again as wide as long." There are several species before me which might be this insect, but as they do not agree exactly with its described colours (even although Mr. Blackburn supposes these to be variable) I prefer to leave them untouched for the present.

Palmerstoni, Blackb.—The width of the prothorax is not given, but as the insect itself is described as closely resembling the preceding species (except in colours), it also is probably allied to *mastersi*.

Mossmani, Macl.—Belonging to the *mastersi* group, but with the upper surface entirely pallid.

The others may be tabulated as follows :—

A. Apterous.	
a. Elytra fasciate.	*alternatus*, n. sp.
aa. Elytra not fasciate.	
b. Large and comparatively robust .	*apterus*, Oll.
bb. Small and very thin	*kershawi*, n. sp.
AA. Winged.	
B. Prothorax partly dark.*	
c. Elytra entirely dark.	
d. Prothorax distinctly transverse in both sexes	*nobilitatus*, Er. (in part.)
dd. Prothorax distinctly transverse in female only	*pulchellus*, W. S. Macl.
cc. Elytra entirely pallid †	*flavipennis*, Macl.
ccc. Elytra dark with a subapical fascia.	*notophilus*, Blackb.
cccc. Elytra dark at base and apex . .	*imperialis*, Redt.
ccccc. Elytra dark at base and maculate near apex	*curvipes*, n. sp.
BB. Prothorax entirely pallid.	
C. Elytra entirely dark.	
e. Prothorax strongly transverse . .	*nobilitatus*, Er. (in part.)
ee. Prothorax at least as long as wide.	

* I have not included part of *nigroterminalis* here, as even when present the dark marking of the prothorax is only of the nature of a stain ; for the same reason part of *viridipennis* is not included.

† There is occasionally an infuscate blotch about the scutellum.

f. Antennae with 9th and 10th joints whitish . . . . . *inconstans*, n. sp. (in part.)
ff. These joints dark . . . . . *viridipennis*, Macl.
CC. Elytra entirely pallid . . . . . *macrops*, n. sp.
CCC. Elytra partly dark.
D. Dark portion at apex only.
g. Prothorax strongly transverse.
h. Antennae thin, elytra dark at tip only . . . . . *rubriceps*, Macl.
hh. Antennae stout, elytra with at least apical fourth dark *rufiventris*, Macl.
gg. Prothorax scarcely or not at all transverse.
i. Antennae with terminal joints pale . . . . . *immaturus*, n. sp.
ii. Terminal joints dark . . . *nigroterminalis*, n. sp.
DD. Dark portion not only at apex.
E. Prothorax strongly transverse.
i. Basal and apical markings of elytra sharply terminated . *mastersi*, Macl.
jj. These markings connected along sides . . . . . *froggatti*, Macl.
EE. Prothorax as long as wide . . . *inconstans*, n. sp. (in part.)

TELEPHORUS PULCHELLUS, W. S. Macl., King's Survey, App., p. 442; Cast., Hist. Nat., i, p. 272; Boisd., Voy. Astr., ii, p. 131; Blackb., T. R. S., S.A., 1886, p. 260.

Var. *notophilus*, Blackb., T. R. S., S.A., 1900, p. 116.

The colour of the elytra of this species varies from a dull brassy-green to a rather deep blue. The males are usually smaller than the females and have longer and thinner antennae, the head, however, is but very little wider; frequently it has two feeble infuscate spots at the base of the prothorax, otherwise the sexes (at least of the common forms) do not differ in colour.

I have a female (also from the Adelaide Museum as were Mr. Blackburn's specimens) of the variety *notophilus* which is still fast *in cop.* with a quite normal male; and there is another specimen in the National Museum from Queensland.

Hab. N.S. WALES; VICTORIA; TASMANIA; S. AUSTRALIA.

TELEPHORUS NOBILITATUS, Er. (*Cantharis*), Wiegm. Arch., 1842, i, p. 146.

tricolor, Cast., Hist. Nat., i, p. 275.
vars. *ruficollis*, Macl., Trans. Ent. Soc., N. S. Wales, ii, p. 264.
var. *proprius*, Blackb., T. R. S., S.A., 1886, p. 260.
var. *andersoni*, Blackb., *l. c.*, p. 261.
var. *vibex*, Blackb., *l. c.*, p. 261 ; P. L. S., N.S.W., 1891, p. 530.

(*Figs.* 2, 174, 175, 176, 177, 178.)

This is an extremely variable species in size, colour and markings, so it is no wonder that several of its varieties have been described as distinct species.

Tricolor is very briefly described, but there is no doubt in my mind but that Castelnau's specimens belonged either to the typical form of *nobilitatus*, or to one of its numerous varieties.

Ruficollis is the common form in New South Wales and Queensland; in fact, except from Mount Kosciusko,* I have seen no specimens from outside Tasmania having the femora entirely dark.

I have varieties agreeing well with the descriptions of *proprius* and of *vibex* but not with the prothoracic markings attributed to *andersoni* †; but as Mr. Blackburn says these are three closely-allied species, *andersoni* being placed between *proprius* and *vibex*, it appears to me extremely probable that it also is only a variety.

If the type of *vibex* was, as supposed by Mr. Blackburn,‡ a female, the pallid triangle at the base of the head is a most unusual feature, as in all the females I have examined the base is invariably black §; several males, however, before me have such a triangle.

* Tasmanian species in all branches of natural history are usually darker (and frequently larger) than their mainland fellows, but the specimens from Mount Kosciusko and other mountains of the Australian Alps resemble those from Tasmania.

† Since this was written I have seen five specimens from Australia, one of which agrees exactly with Mr. Blackburn's description of *andersoni*; the others all resemble it in size, etc., but have the prothoracic markings reduced to a longitudinal spot on both sides.

‡ In a footnote he stated that he was not quite sure of the sexes.

§ That is to say, the exposed portion, part of the coloured portion usually being red.

Mr. Blackburn, in comparing *vibex* with *nobilitatus*, pointed out certain differences in colour, but these are all unreliable; and as regards the other features, the punctures of the elytra are different in different specimens, and their appearance is frequently altered by the elytral granules or subgranules being advanced almost to the base (especially in the males); and also by the different rates of shrinkage in individuals and the amount of gloss at the base. Tasmanian males appear to me to have the hind tibiae arched very strongly, certainly no more than in the males of *imperialis* and decidedly less than in *apterus*. The elytra in pinned specimens assume very different shapes to what they do in carded ones, but scarcely any two specimens selected at random agree in the final shape assumed both by the prothorax and elytra.

Specimens before me vary in length from 6 to 13 mm. (or, including the abdomen of gravid females, 16 mm.).

The flavous marking on the clypeus of the male is usually continuous from eye to eye, but it is occasionally completely interrupted in the middle,* whilst it is even sometimes connected with the red basal portion by a rather indistinct reddish streak. The base of the head in the male is rarely entirely black, usually there is a wide patch which on its front margin is usually quite straight, sometimes it is bilobed or trilobed, whilst in others it is distinctly triangular. The head of the male is usually, but not always, wider than the prothorax, but is always wider (frequently very considerably so) than that of the female. The antennae also vary in length, in some males from Western Australia extending almost to apex of elytra; in the more normal forms, however, they are shorter, whilst they are always shorter in the females than in the males.

It is to be noted that the shape of the disc of the prothorax, and even the outlines, is subject to alteration after death, through contraction taking place irregularly. The apex is always bilobed, although sometimes only perceptibly so. With age it often turns to a dirty (often oily-looking) red. A variety rather common in Tasmania has, in both sexes, a large blackish blotch of variable shape and size (but always sharply defined) on

* Usually the dark portion is advanced in the middle of the clypeus, being sometimes entire and sometimes bilobed, or even in the form of two spots, but in a few specimens it is continuous to the apex.

the disc; such specimens frequently mate with specimens having the prothorax immaculate.

On the bodies drying the elytra curl up so that they usually appear to be much narrower (especially in pinned specimens) than the abdomen. They vary in colour from green to purple, but the base is usually more or less shining and frequently with a coppery gloss; the greater part of the elytra, however, is usually more or less opaque.

The dark markings of the under surface also vary to a considerable extent, in some specimens nearly all, in others scarcely any, of the metasternum is black; in some all the abdominal segments are black at the sides, whilst in others the five basal segments are clear at the sides; the parts more or less concealed by the elytra also vary.

Three males from the Illawarra district have the greater portion of all the femora pallid, also the lower surface of the first and second joints of antennae, the metasternum (except for a triangular space) and abdomen (except for the apical segments); but at the sides of the abdomen in two of them there are infuscate spots. On the head the flavous frontal space is rather larger than usual; in one of them it is connected with the base by an indistinct infuscate streak, which widens out towards the base but near it is suddenly constricted; in the second specimen the pallid basal space forms a rather narrow triangle whilst in the third it is still narrower and very indistinct.

A very distinct variety from S. Australia is represented by two specimens in the Macleay Museum. These are very small (6–7 mm.), have the head red except for an interrupted black fascia between the eyes, the apical half of the prothorax (but not the extreme apex) black; the apex of the femora, the tibiae, tarsi and antennae (basal joints in parts paler) more or less dark; and the elytra of a dingy green.

Hab. QUEENSLAND; N. S. WALES; VICTORIA; TASMANIA; S. and W. AUSTRALIA.

TELEPHORUS FLAVIPENNIS, Macl., Trans. Ent. Soc., N. S. Wales, II, p. 264. (*Fig.* 171.)

This species can be readily distinguished from *imperialis* (which in many respects it closely resembles) by the bicostate elytra and unicolorous antennae.

Two specimens from the Tweed River differ from the

normal form in having a fairly large blackish blotch on each side of the scutellum.

Hab. QUEENSLAND: Gayndah, Brisbane; N. S. WALES: Tweed River; VICTORIA: Wodonga.

TELEPHORUS MASTERSI, Macl., *l. c.*, p. 264. (*Fig.* 158.)

This species is variable in its colouring. In some specimens the head is entirely pallid, in others the base is black. The markings at the base of the elytra are usually sharply defined and have a more or less sinuous outline posteriorly, but in one specimen before me they are almost absent, a slight infuscation of the shoulders and a space near the suture being all that is left. In some specimens the legs are almost entirely pallid, in others only parts of the femora are dark; the metasternum has a space of variable size varying from slightly infuscate to deep black. The antennae sometimes have the lower surface of all the joints pale, sometimes but of three or four.

Hab. QUEENSLAND: Gayndah, Brisbane, Cairns, Somerset, Fitzroy; N. S. WALES: Tweed and Richmond Rivers.

TELEPHORUS RUFIVENTRIS, Macl., P. L. S., N.S.W., 1887, p. 236.

In the description the antennae are stated to be "inserted almost beneath the eyes"; as a matter of fact each antennae is nearer to an eye than to its fellow but they are not inserted almost beneath the eyes. Of the specimens before me (two of them are co-types) two are females with the metasternum slightly infuscate at sides; the others are males with the metasternum much darker, the base of the head infuscate and the antennae considerably longer.

Hab. QUEENSLAND: Mossman River, Cairns.

TELEPHORUS FROGGATTI, Macl., *l. c.*, p. 237.

The antennae are inserted much as in *rufiventris*. The under surface is variable in colour, as in several specimens the abdomen, except at apex, is entirely pale. In the types and in other specimens the base of the elytra is stained with black, the stains are continued along the sides and are then dilated so as to touch the suture at

about the apical fifth; but the dark portions are somewhat variable and are not sharply limited.

Hab. QUEENSLAND: Mossman River, Cairns.

TELEPHORUS VIRIDIPENNIS, Macl. (*Selenurus*), *l. c.*, p. 238.

The head is not striolate although so described; there is certainly an appearance of striolation at first sight, but this is entirely due to pubescence. The space between the eyes is slightly undulating but the expression "a deep corrugated impression between the eyes" is misleading. In two specimens before me (co-types) one has the prothorax immaculate and the other has it slightly clouded in the middle. The elytral punctures are much as in *inconstans*; in fact, the most noticeable distinction between the two species being the white 9th and 10th joints of the antennae of *inconstans*.*

I have tabulated the species with *Telephorus* as it appears to me to be out of place in *Selenurus*.

TELEPHORUS IMPERIALIS, Redt., Reise Novara, II, p. 103, Pl. IV, fig. 1; Fairm., Journ. Mus. Godeff., 1879, p. 98.

pictus, Cast., Hist. Nat., I, p. 275 (n. pr.).
stictieus, Gemm., Col. Heft., VI, 1870, p. 120. (*Figs.* 159, 172.)

The description of *pictus* is very short (the head antennae and legs are not even mentioned) but the colours exactly fit *imperialis*.

In the male the head is considerably wider than the prothorax, and the muzzle is flavous, much as in *nobilitatus*; in the females part of the 10th joint as well as the whole of the 9th is sometimes whitish. The specimens before me range from 5–14 mm. in length.

Hab. QUEENSLAND: Mt. Tambourine; N. S. WALES: Sydney, Wollongong, Richmond River; VICTORIA: Narracan, Gippsland.

MOSSMANI, Macl., P. L. S., N.S.W., 1887, p. 235.

Hab. QUEENSLAND: Mossman River.

* Of the numerous specimens of *inconstans* which I have seen these joints are invariably pale; of four specimens of *viridipennis* they are invariably dark.

RUBRICEPS, Macl., *l. c.*, p. 236.
Hab. QUEENSLAND: Mossman River.

TEPPERI, Blackb., *l.c.*, 1888, p. 1424.
Hab. S. AUSTRALIA, N. Territory.

PALMERSTONI, Blackb., *l.c.*, p. 1425.
Hab. S. AUSTRALIA, N. Territory.

APTERUS, Olliff, Mem. Aust. Mus., II, 1889, p. 86, Pl. VI, fig. 3.
Hab. LORD HOWE ISLAND.

TELEPHORUS ALTERNATUS, n. sp.

♂. Black, the dark parts of the elytra with or without a bluish gloss; basal half of prothorax, a wide postmedian fascia on elytra, abdomen (except two apical segments), three basal and three apical joints of antennae and parts of coxae, flavous or almost so. Rather sparsely clothed with very short pubescence.

Head very finely punctate. Antennae passing apex of elytra, moderately stout, 3rd joint much shorter than 4th. *Prothorax* as long as its width across apex, apex much wider than base; hind angles strongly, the front moderately rounded, base and apex very feebly bilobed; very minutely punctate. *Elytra* very little wider and about once and one half the length of prothorax, each pointed at apex; densely, moderately coarsely and rugosely punctate; without raised lines. *Legs* long and thin. Length to apex of elytra 3 (♀ 5), of abdomen 5 (♀ 9) mm.

♀. Differs in being larger, head longer, prothorax less narrowed towards base, antennae and legs shorter and stouter, abdomen wider, etc.

Hab. N. W. AUSTRALIA (Macleay Museum), King's Sound (*W. W. Froggatt*); QUEENSLAND: Bowen (*Aug. Simson*), Chillagoe (*C. French*).

A very narrow species though considerably wider than the following; from both that species and *apterus* (the only other apterous species hitherto described) the fasciate elytra will readily distinguish it. The colours appear in alternate zones, the pale base of the prothorax occupies rather more than half the surface, the elytral fascia usually commences slightly before the middle and terminates rather close to the apex. The abdomen (except the apical segments) is usually entirely pallid, but on the upper surface is occasionally marked by infuscate spots or zones.

The 1st joint of the antennae is sometimes partly black above, the 4th is sometimes pale below, whilst the 11th is usually infuscate at the apex. The prothorax is impressed in various places, but the impressions seem to be mostly due to irregular contraction, as they are seldom the same on any two specimens. In the female the 4th–8th joints of the antennae are noticeably stouter than the others.

TELEPHORUS KERSHAWI, n. sp. (*Fig.* 3.)

♂ ♀. Black, elytra with a slight greenish or bluish gloss; prothorax flavous, but with a dark transverse irregular apical patch; upper surface of abdominal segments dark above, except at tips, lower surface pallid, but each with a spot on each side and one in the middle; the two apical segments entirely dark. Sparsely clothed with very short pubescence, longer at sides than elsewhere.

Head elongate, scarcely visibly punctate. Antennae moderately long; 3rd joint distinctly shorter than 4th. *Prothorax* much longer than wide, apex and all the angles rounded; impunctate. *Elytra* not as long as head and prothorax combined, and but little wider than either, each obtusely rounded at apex; coarsely sculptured. *Legs* long and thin. Length to apex of elytra 4, of abdomen 6 mm.*

Hab. VICTORIA: Mordialloc (types in National Museum).

The long prothorax might be considered as evidence that this species belonged to *Selenurus*, but I have not considered it advisable to generically separate the three apterous species. It is so narrow that at first sight it might almost be thought to belong to *Carphurus*. The elytra are so sculptured that they might be regarded either as irregularly granulate or coarsely and rugosely punctate. The dark marking of the prothorax appears somewhat like a figure ∞ on one of the females, but it is not exactly the same in any two specimens. The male is smaller than the female, with longer and thinner antennae and legs, larger head and narrower elytra.

TELEPHORUS INCONSTANS, n. sp.

♂ ♀. Head black, with a metallic-bluish gloss; each antennae inserted in an indistinct pallid spot; prothorax reddish; elytra dark

* The lengths given are from a female; three other specimens before me are too much contracted to be measured satisfactorily.

green, or with a large pallid median space, or dark only at base and apex; abdomen and sides of meso- and metasternum flavous; scutellum and appendages black; 9th and 10th joints of antennae whitish. Clothed with short, dense pubescence, more noticeable on elytra and legs than elsewhere.

Head very finely punctate; with several shallow depressions between eyes. Antennae rather long and thin, 3rd joint much shorter than 4th. *Prothorax* about as long as the width across its apex, apex distinctly wider than base, all the angles rather strongly rounded off, base bilobed. *Elytra* long and thin, usually passing abdomen, base much wider than prothorax; very densely and moderately coarsely punctate, punctures smaller at base and extreme apex than elsewhere; each with a feeble raised line. *Legs* long and thin.

Length 12–15 mm.

Hab. QUEENSLAND: Brisbane (*E. J. Turner* and *R. Illidge*); N. S. WALES (National Museum), Clarence River (Macleay Museum and *A. M. Lea*).

I do not know which to regard as the typical form and which as the varieties of this species; of the twelve specimens before me four have the elytra entirely dark green, six have a rather short basal, and a somewhat larger apical space dark green, the intervening space (covering more than half of the surface) being pale flavous; whilst the other two have the basal and apical markings connected along the sides. The green parts occasionally become purplish where they approach the flavous parts. The 10th joint of the antennae is usually infuscate at apex, the 2nd–8th are each frequently pallid at the extreme base. The two apical segments of the abdomen are usually feebly maculate.

Compared with the types of *viridipennis* to which it is very close (I am by no means certain but that the various forms described should not be at all regarded as varieties of that species), it differs in being larger, stouter, the head with much finer punctures, and the 9th and 10th joints of antennae of different colour.

TELEPHORUS NIGROTERMINALIS, n. sp.

♂ ♀. Of a rather dingy flavous; head (portion of the space between the antennae dull reddish), scutellum, apical 5th of elytra, antennae (four basal joints partly pallid), parts of palpi, legs (except knees, parts of coxae and of front tibiae), meso- and metasternum

(except parts of sides), black or blackish. Very densely (less densely on the head and prothorax than elsewhere) clothed with very short pubescence.

Head densely and finely punctate, with several feeble impressions between eyes and with a shallow longitudinal one. Antennae moderately long, 3rd joint much shorter than 4th. *Prothorax* about as long as wide, angles rounded, apex almost truncate, base rounded and not bilobed, surface irregularly impressed ; densely and minutely punctate. *Elytra* long, not very much wider than prothorax ; densely and rugosely but not coarsely punctate ; each with traces of one or two feeble oblique raised lines. *Legs* long and thin.

Length 10–15 mm.

Hab. QUEENSLAND (*Aug. Simson*), Port Denison (Macleay Museum).

Although the descriptions of this and the following species may read somewhat like that of *mastersi*, and the numerous allies of that species, in appearance they are really very different, the most noticeable distinctions being the opaque derm and much longer prothorax. The male is rather smaller and narrower than the female, with a larger head and thinner and longer antennae. On an occasional specimen there is an infuscate spot on the prothorax and another on each side of the scutellum. From some directions the dark apex of the elytra appears to be granulate.

TELEPHORUS IMMATURUS, n. sp.

♂. Pale flavous ; head (parts between and in front of antennae excepted) and apical 5th of elytra almost black ; apical half of femora, tarsi (and to a less extent the tibiae), middle of metasternum, apex of abdomen and 4th–8th joints of antennae more or less deeply infuscate. Rather densely clothed with very short pubescence.

Head densely and finely punctate, almost regularly convex between eyes. Antennae rather stout and not very long, 3rd joint much shorter than 4th. *Prothorax* with apex and angles rounded, base bilobed ; densely and minutely punctate. *Elytra* much as in the preceding species, except that the punctures are rather coarser and the raised lines even less distinct. *Legs* long and thin.

Length 9–10 mm.

Hab. N. W. AUSTRALIA (type in Macleay Museum)

At first sight not unlike pale undersized specimens of the preceding species but the differently coloured legs and antennae will at once readily distinguish it; the head also is without a longitudinal impression and the prothorax is different both at the base and apex. In the two specimens before me the scutellum is slightly infuscate at apex; the three basal and three apical joints of antennae are distinctly paler than the others. Owing to irregular contraction the prothorax of one of the specimens is distinctly longer than wide; in the other it is about as long as wide.

TELEPHORUS MACROPS, n. sp. (*Figs.* 157, 173.)

♂. Pale reddish flavous and highly polished; eyes black. Clothed with very short pubescence.

Head large, wider than prothorax, impunctate, nowhere distinctly impressed; eyes unusually large and strictly lateral. Antennae moderately long; 3rd joint scarcely, if at all, shorter than 4th. *Prothorax* about as long as wide, apex rounded, base feebly bilobed; front angles strongly, the hind rather feebly bilobed; sparsely and minutely punctate. *Elytra* the width of head across eyes; densely but not very coarsely (at base very finely) punctate; with traces of several very feeble raised lines. *Legs* long and thin.

Length 9 mm.

Hab. QUEENSLAND: Cairns (type in R. Illidge's collection).

This species belongs to the *mastersi* group, but is readily distinguished from all previously described Australian species by its entirely pallid colour, except as to the eyes. The eyes are considerably larger than in any other species here noted or described, and (partly of course owing to their colour) appear unusually distinct.

TELEPHORUS CURVIPES, n. sp. (*Fig.* 157, 173.)

♀. Black; a spot on each side of head (marking the insertion of antennae), prothorax (a large frontal fascia black), elytra (a basal space and a small subapical spot on each excepted), sides of metasternum, abdomen (two apical segments excepted), apex of coxae and base of trochanters pallid. Densely clothed with very short pubescence.

Head very finely punctate. Antennae thin but not very long, 3rd joint much shorter than 4th. *Prothorax* rather shorter than its

width at apex, all the angles rounded, both base and apex very feebly bilobed; densely and minutely punctate. *Elytra* long, not much wider than prothorax, each obtusely pointed at apex; densely, rather coarsely, and rugosely punctate; without raised lines. *Legs* long and rather thin; hind femora strongly curved. Length 11 mm.

Hab. N. S. Wales: Sydney (*A. M. Lea*), Gosford (*H. J. Carter*).

The non-costate elytra with a dark basal zone and two subapical spots readily distinguishes from *flavipennis*. The entirely dark antennae and pallid anterior margins of prothorax, with a spot on each side close to but not on apex of elytra distinguishes from *imperialis*. The hind femora are unusually strongly curved. The base of the front tibiae and parts of the tarsi are indistinctly paler than the adjacent parts; the frontal fascia of the prothorax occupies about half the surface and appears, from above, to extend to the sides, although it does not really do so; there is also a small infuscate spot on each side of the base, such as there frequently is in *pulchellus*; the dark parts of the elytra have a slight bluish gloss, the basal space occupies about one-sixth (or less) of their length; the subapical spots are longer than wide, rounded, and distant about their own length from the apex.

Genus Selenurus, Fairm., Journ. Mus., Godeff., 1879, p. 98; Blackb., T. R. S., S.A., 1886, p. 259; 1892, p. 221.

I know no distinct feature by which this genus is to be distinguished from *Telephorus* *; but as both Sir William Macleay and the Rev. T. Blackburn have recognised it as valid I shall not propose to regard it as really synonymous with *Telephorus*. Should, however, it be eventually proved that the Australian species referred to *Telephorus* do not really belong to that genus, it may be advisable to unite them all under *Selenurus*.

Apicalis, Macl., is allied to *annulatus*. I have not a specimen before me now, but the others (excluding *appendiculatus* described after the table was drawn up) may be tabulated as follows :—

* The species at present referred to the genus (except *granulatus*) are very homogeneous in appearance, however.

A. Elytra entirely dark.
  a. Metasternum pallid in middle . . . *granulatus*, Lea.
  aa. Metasternum dark in middle.
    b. More than half of prothorax dark *tricolor*, Lea (in part).
  bb. Less than half dark . . . . . *sydneyanus*, Blackb.
AA. Elytra partly pallid.
  B. Tip of elytra pallid.
    c. Pale apex connected with base . *v-flavus*, n. sp.
    cc. Pale apex not so connected . . *annulatus*, Macl.
  BB. Tip of elytra dark.
    C. Prothorax pallid . . . . . *luteopictus*, Fairm.
    CC. Prothorax partly dark.
      D. Elytra bifasciate . . . . . *variegatus*, Blackb.
        DD. Elytra with remnants of but one fascia . . . . . *tricolor*, Lea (in part).

Selenurus depressicollis, Macl. (*Ichthyurus*). Trans. Ent., N.S. Wales, II, p. 264; Blackb., T. R. S., S.A., 1892, p. 221; var. *luteopictus*, Fairm., 1877, p. 167, Journ. Mus., Godeff., 1879, p. 99. (*Fig.* 156.)*

The apical joint of the antennae of the type of *depressicollis* is dark terminally, the spot on the prothorax is a stain only, although described as "a broad black band." *Luteopictus* is a form (the commoner of the two in my experience), in which the prothorax is immaculate.

Of three specimens now before me, two agree exactly with the description of *luteopictus*; the other agrees exactly in colour, but has the elytra much less coarsely sculptured, and the elevated line on each scarcely traceable.

Hab. Queensland: Gayndah, Brisbane, Peak Downs, Mackay; N.S. Wales: Tweed River.

Selenurus annulatus, Macl., P. L. S., N.S.W., 1887, p. 238. (*Fig.* 155.)

In a specimen from Cairns the dark basal and subapical markings of the elytra are disconnected, and the spot on the prothorax is small and of irregular shape; in two others (sexes) from Kuranda, the dark elytral markings are connected along the sides, and the prothoracic spot is almost a perfect semicircle, the convex side of which faces the apex.

Hab. Queensland: Mulgrave River, Cairns, Kuranda.

* Var. *luteopictus*.

Selenurus tricolor, Lea, *l. c.*, 1895, p. 232.
fernshawensis, Blackb., T. R. S., S.A., 1900, p. 115. (*Fig.* 170.)

At the time this species was described I imagined that the specimens having the elytra immaculate were typical of the species; and that those with the subapical spot common to both elytra represented a variety. I have since however obtained four specimens all of which have the subapical spot; so that this form (which agrees exactly with Mr. Blackburn's description of *fernshawensis*) appears to be the typical one.

Hab. N. S. Wales: Blackheath, Mount Kosciusko (5,700–6,000 feet); Victoria: Fernshaw; Tasmania: Huon River.

Selenurus sydneyanus, Blackb., T. R. S., S.A., 1892, p. 221.

Two specimens from Brisbane differ from the normal form in having the prothoracic fascia reduced to irregular spots or blotches.

Hab. Queensland: Brisbane; N. S. Wales: Sydney, Narrabeen, Wentworth Falls; Victoria.

apicalis, Macl., P. L. S., N.S.W., 1887, p. 257.
Queensland: Mossman River.

variegatus, Blackburn, T. R. S., S.A., 1892, p. 220. (*Fig.* 154.)
N.S. Wales: Blue Mountains; Queensland.

granulatus, Lea, P. L. S., N.S.W., 1895, p. 231.
W. Australia: Bunbury.

Selenurus V-flavus, n. sp.

♀. Black; a spot on each side between eyes (marking the insertion of antennae), mandibles, margins of prothorax, an elongate stripe on each elytron, parts of sterna, of abdomen, and of coxae, flavous; 9th joint of antennae paler than the others. Clothed with short sparse pubescence.

Head moderately large; with some large punctures towards the middle of base, elsewhere very finely punctate. Antennae rather long and thin, 3rd joint much shorter than 4th. *Prothorax* longer than wide, apex and all the angles rounded, base feebly bilobed,

with a moderately distinct tranverse median ridge ; very minutely punctate. *Elytra* at base considerably wider than prothorax, the apices obtusely pointed and separated ; densely coarsely and somewhat rugosely punctate ; with scarcely any indications of raised costae. *Legs* long and thin.

Length 10 mm.

Hab. QUEENSLAND : Tambourine (type in R. Illidge's collection).

The pale prothorax margins are very narrow and on each side in front appear to be interrupted, but on examining the insect from the side it can be seen that the black does not extend to the extreme margins. The pale markings on the elytra extend from each shoulder to the apex and combined look like an elongated V ; the sides from the base to the apical third are narrowly black, the median dark marking (and which has a slight bluish gloss) appears as a narrow triangle or wedge, with its base the exact width of the prothorax, and its apex about one-fourth from the apex of the elytra.

SELENURUS APPENDICULATUS, n. sp. (*Figs.* 104, 105.)

♂. Of a dingy mouse-coloured grey, head somewhat darker. Very finely pubescent.

Head convex, microscopically punctate ; eyes large. Antennae long and thin, extending to apex of elytra, 2nd and 3rd joints subequal and shorter than 1st or 4th. *Prothorax* tranverse surface irregular. *Elytra* not extending to apex of abdomen, each separately rounded ; with scarcely visible punctures. *Abdomen* with apical and subapical appendages. *Legs* long and thin.

Length 2 mm.

♀. Differs in having the head more convex, antennae much shorter, legs shorter and abdomen simple.

Hab. TASMANIA : Mount Wellington, Hobart, Huon River (*A. M. Lea*).

Certainly the thinnest and almost the shortest of all the Australian Malacoderms, and perhaps the most remarkable. The abdomen of the male is terminated by a double curved appendage, the 4th* segment on its lower surface appears to have a deeply cleft extension, and from the middle of this two appendages are continued, one on each side of the apical appendages.† Probably, however, in

* I may be wrong in regarding this segment as the fourth.

† The whole is ridiculously suggestive of the skull of a mouse.

other males all these appendages will not be visible, or will appear to be different, as the insects (there are one male and two females under examination) are subject to great shrinkage. I think it probable that the species will not permanently remain in *Selenurus* * ; but the specimens will not stand the manipulation necessary for a critical generic examination. One specimen was taken from moss, the others from *Acacia* sp. in full bloom; these at the moment of capture looked much like minute Cecidomyid flies. The elytra are of so fragile a nature that they appear to twist almost as readily as the wings.

Genus Heteromastix, Boh., Res. Eugen., p. 86.

This genus was proposed by Bohemann for a small insect having the 10th and 11th joints of the antennae curiously distorted; subsequently Blackburn referred two species having simple antennae to it and stated that he thought *Telephorus pusio* (*pusillus*, Boh.) was congeneric. This is my opinion also, and I think that *Telephorus victoriensis*, *galeatus*, *fusicornis* and *pauxillus* as well, should he referred to the genus.

The genus although close to *Telephorus* differs in the antennae abdomen and simple mandibles. All the species are small, with the prothorax strongly transverse (usually fully twice as wide as long). It is readily divisible into sections dependent on the antennae of the male.

1. Eleventh joint (and usually the tenth) distorted in the male.
2. Ninth joint distorted in the male.
3. Third to fifth joints distorted in the male.
4. Antennae simple in both sexes.

There is nothing, however, in the females to indicate to which of these sections they belong. The first section is the typical one, but is perhaps not so numerously represented as the fourth.

The mandibles are usually so folded as to be indistinct, and it is difficult to manipulate specimens to see them at all clearly; but in specimens of several species (*flavipennis*, *latus*, and *simplex*) before me they are exposed, and are

* In the male of *Selenurus sydneyanus* there are also some remarkable subapical appendages in the abdomen; as this contracts so greatly in dying, it is difficult to make out their true nature, but there are at least two sharp curved long processes.

seen to be long, thin, strongly curved, sharp-pointed and edged and perfectly simple.

The prothorax is but little, or not at all, narrower than the elytra; and is usually impunctate, or if any punctures are present these are confined to the margins; the head also is either indistinctly or not at all punctate (except in *flavipennis*); the elytra, however, are usually densely and rugosely punctate.

In the male the penultimate segment of the abdomen is deeply excised, often semicircularly, but sometimes to the base itself; the preceding segment is widely emarginate or simple. In the female the abdomen is usually quite simple, but sometimes the penultimate segment appears lobed in the middle, with a depression on each side of the lobe: but the apex itself is not emarginate, or if so then throughout its entire length.

The tibiae seem to be always terminated by minute spines, but these are sometimes so very small as to be scarcely, or not at all, distinguishable from the pubescence. The basal joint of the hind tarsi is as long or almost as the three following joints combined.

I have not considered it necessary to describe the pubescence of each species, as it is much the same in all; that is to say, short and moderately dense on the elytra, and sparse or moderately sparse elsewhere; it appears to be comparatively easily abraded.

The sex should always be stated; I have seen no species (with the exception of *dolichocephalus*) in which the female is sufficiently distinctive to warrant a description being founded on that sex only; in fact, the females of most of the species are so closely allied in general appearances that it is often very difficult to separate them.

I have seen many other species which for various reasons are not here described, and I think it probable that the number now recorded will be more than doubled, and that other singular modifications of the antennae will be found to exist. I am acquainted with all the described species excepting possibly *galeatus*, which is commented on below They may be tabulated as follows:—

A. Antennae with 3rd–5th joints distorted in male.
  a. Elytra entirely dark . . . . . *distortus*, n. sp.
  aa Elytra partly pale . . . . . *inflatus*, n. sp

AA. Antennae with 9th joint distorted in male.
  b. Head dark . . . . . *McDonaldi*, Lea.
  bb. Head pale.
    c. Elytra entirely dark . . . . . *fusicornis*, Blackb.
    cc. Elytra partly pale . . . . . *macleayi*, n. sp.
AAA. Antennae with 11th joint distorted in male.
    d. Elytra partly pale . . . . . *luridicollis*, Macl.
    dd. Elytra entirely dark.
      e. Head entirely pale . . . . *mirabilis*, Lea.
      ee. Head entirely dark.
        f. Tenth joint not distorted in in male . . . . . *decipiens*, n. sp.
        ff. Tenth joint distorted in male.
          g. Scutellum dark . . . . *gagaticeps*, Lea.
          gg. Scutellum pale.
            h. Legs almost entirely pale . . . . . *pallipes*, n. sp.
            hh. Legs almost entirely dark . . . . . *laticollis*, n. sp.
      eee. Head with muzzle pale
        i. Ninth joint of antennae in male strongly transverse *crassicornis*, Lea.
        ii. Ninth joint not transverse.
          j. Apical joints of antennae in male pale * . . . . *bicolor*, Boh.
          jj. Apical joints dark.
            k. Scutellum pale . . . *frater*, n. sp.
            kk. Scutellum dark.
              l. Muzzle very distinctly pale . . . . . *flavifrons*, n. sp.
              ll. Muzzle indistinctly pale . . . . . *imitator*, n. sp.
AAAA. Antennae simple in both sexes.
  B. Prothorax entirely dark.†
    m. Prothorax notched on each side of base . . . . . *tenuis*, n. sp.
    mm. Prothorax not notched at base.
      n. Elytra entirely dark . . . . . *niger*, n. sp.

---

* Usually the entire antennae.

† There is a variety of *niger* in which the sides of the prothorax are not entirely dark.

nn. Elytra partly pale	*dolichocephalus*, n. sp.
BB. Prothorax with dark margins .	*discoflavus*, n. sp.
BBB. Prothorax entirely pale.*	
C. Elytra pale	*flavipennis*, n. sp.
CC. Elytra dark.	
D. Head pale.	
o. Greater portion of legs pale	*anticus*, Blackb.
oo. Greater portion dark . .	*geniculatus*, n. sp.
DD. Head dark (the muzzle sometimes excepted).	
E. Terminal joint of antennae in male constricted in middle.	
p. Legs entirely dark . .	*nigripes*, n. sp.
pp. Legs partly pale . .	*latus*, n. sp.
EE. Terminal joint not so constricted.	
F. Margins of prothorax simple.	
q. Prothorax with very distinct submarginal punctures	*victoriensis*, Blackb.
qq. Prothorax without punctures.	
r. Antennae long and thin	*pauxillus*, Blackb.
rr. Antennae comparatively robust .	*simplex*, n. sp.
FF. Margins of prothorax not simple.	
G. Elytra coarsely punctate	*perabundans*, n. sp.
GG. Elytra moderately punctate at most.	
H. Elytra with very numerous distinct transverse ridges .	*occidentalis*, n. sp.
HH. Elytra without such ridges.	
I. Knees much paler than femora .	*elegans*, n. sp.
II. Knees not at all or very slightly paler than femora .	*pusillus*, Boh.

* Occasionally there is a dark stain at the base, or at both base and apex.

HETEROMASTIX BICOLOR, Boh., Res. Eugen., p. 81, Pl. I, fig. 3; Lea, P. L. S., N.S.W., 1895, p. 233. (*Figs.* 41, 42.)

In the typical form of this species the antennae of the male are uniformly pallid, rather stout, and somewhat shorter than the elytra; the 11th joint at its greatest length is fully twice the length of the 10th.

Hab. N.S. WALES: Sydney, National Park.

Var. PRIMUS, n. var.

Differs in having the antennae thinner and longer (slightly longer than the elytra) with the median joints infuscate, but the terminal joints are of the same shape and colour as in the typical form.

Hab. N.S. WALES: National Park.

Var. SECUNDUS, n. var. (*Fig.* 43.)

Differs from the typical form in having the antennae thinner and much longer (as long as the head prothorax and elytra combined), the median joints infuscate and the terminal joint not much longer than the 10th at its longest. Its elytra are more sparsely clothed and with darker pubescence, and the punctures of the same are larger and more noticeable.

Although the antennae of this form are so different in appearance to that of the typical form of *bicolor*, I have not considered myself justified in describing the unique specimen before me as belonging to a distinct species, especially as the preceding variety is clearly intermediate between the two forms.

Hab. N.S. WALES: Wollongong.

HETEROMASTIX PUSILLUS, Boh. (*Telephorus*), Res. Eugen., 1858, p. 80.

Telephorus pusio, Gemm., Col. Heft., vi, 1870, p. 120.
Var. *dilataticollis*, Blackb., T. R. S., S.A., 1892, p. 222.

This species is common in New South Wales, and varies in length from $2\frac{1}{2}$ to $3\frac{3}{4}$ mm. The basal joints of the antennae and the legs also vary in colour, but the paler portions are never of the clear colour of the prothorax. The dilated portion of the prothorax is much more conspicuous in some specimens than in others.

Numerous specimens from Western Australia before me

have the antennae slightly longer and the dilated portion of the prothorax less abrupt, but more noticeably thickened; the basal joints of antennae and legs also vary in colour. I cannot regard these specimens, however, as representing more than a variety of *pusillus*, and *dilataticollis* of Blackburn another.

Hab. N.S. WALES: Sydney, Galston, Jenolan, Tamworth, Forest Reefs, Blue Mountains; VICTORIA: Monbulk, Gisborne; S. AUSTRALIA: Adelaide; W. AUSTRALIA: Bridgetown, Karridale.

HETEROMASTIX LURIDICOLLIS, Macl. (*Malachius*), Trans. Ent. Soc., N.S. Wales, ii, p. 265.

The type of this species is a female and is in the Australian Museum; a second specimen from Gayndah is in the Macleay Museum and is a male. The type has brownish elytra, becoming paler at the base. Mr. H. J. Carter has taken several specimens at Byron Bay; these represent varieties having the apical third or fourth of elytra dark, the rest being paler than the prothorax; a specimen from Wide Bay in the Australian Museum has about half of the apex dark.

In both series the prothorax is transversely impressed at the base, each side of the impression opening into a fovea of irregular shape and size; in the description the prothorax is said to have "two small round deep foveae at the base." I certainly, however, cannot regard these foveae as being round (circular) and deep, nor are they isolated as the description implies, each being but a lateral enlargement of the basal impression.

In build and general appearance (except as to the colour of the elytra) the species strongly resemble *gagaticeps*, and the antennae of both sexes and the punctures of the elytra are much the same; so that it is quite an ordinary *Heteromastix*.

Hab. QUEENSLAND: Gayndah, Wide Bay; N.S. WALES: Byron Bay.

HETEROMASTIX VICTORIENSIS, Blackb. (*Telephorus*), P. L. S., N.S.W., 1891, p. 528.

Two males from Jenolan appear to belong to this species; in one of them the three basal joints of antennae are obscurely reddish, in the other the basal one only; the

9th joint is very slightly but perceptibly wider than the 8th or 10th, slightly shorter than the 11th, but longer than any of the others except perhaps the 1st.

Hab. VICTORIA: Alpine district; N. S. WALES: Jenolan.

HETEROMASTIX FUSICORNIS, Blackb. (*Telephorus*), *l. c.*, p. 529.

This species differs from *McDonaldi* in having the scutellum (not mentioned by Blackburn) and head entirely pallid, and more of the legs pallid. The 9th joint of the male antennae is much the same as in *McDonaldi*, except that it is larger, with its apical fovea larger and more distinct; and its head is smooth whilst in that species it is rather coarsely punctate. The female (unknown to Blackburn) differs from the male in having the head somewhat narrower, the 9th joint simple (although it is slightly wider than any of the others) and slightly shorter than the 11th—which is longest of all.

Hab. VICTORIA: Upper Yarra River; N. S. WALES: Sydney.

HETEROMASTIX PAUXILLUS, Blackb. (*Telephorus*), T. R. S., S.A., 1886, p. 261.

I have a specimen from the Rev. T. Blackburn bearing a label in his writing "*pauxillus*, Blackb.," and agreeing with his description except that it is much smaller (2¼ as against 4¼ lines).*

The species is exceedingly abundant and widely distributed in Tasmania, where it occurs on flowers. The male is smaller and thinner than the female, with longer (but still simple) antennae, longer legs and penultimate segment of abdomen semicircularly excised.

Hab. S. AUSTRALIA: Port Lincoln; TASMANIA.

HETEROMASTIX GALEATUS, Blackb. (*Telephorus*), P. L. S., N.S.W., 1891, p. 529.

? *gagaticeps*, Lea, *l. c.*, 1895, p. 233. (*Figs.* 30, 36.)†

Telephorus galeatus, Blackb., is certainly a *Heteromastix*, and quite possibly my *gagaticeps*, in which case the latter

* Mr. Blackburn writes me, however, that 4¼ lines was a misprint and should have been 2¼.

† From type of *gagaticeps*.

name must fall. There are, however, so many species having the 10th and 11th joints curiously distorted (all on the same plan though differing greatly in degree) in the male, that I hesitate to regard the two names as synonymous. In his description, Blackburn says "*femoribus tibiisque* (*antieis totis, ceteris ex parte*) *testaceis.*" I have only seen four specimens of *gagaticeps* having the legs so coloured, all the others (several hundreds) having the legs as in my own description; if therefore *gagaticeps* really belongs to *galeatus*, it is the typical form of a species of which only a rare variety was known to Blackburn.

The difficulty is not diminished by the fact that there are before me three specimens of one species, and one of another,* which also agree with the description of *galeatus* as to colours and sculpture; they are, however, certainly different to *gagaticeps* as the 10th joint of the antennae is much longer (in the male of *gagaticeps* it is decidedly transverse), whilst the 11th is considerably longer and thinner. In one of these species the antennae also are about one-third longer, and the 3rd joint has an infuscate spot on its upper surface; in the other the antennae are of the same length and colours.

Hab. (*galeatus*) Victoria: Alpine District; (*gagaticeps*) Queensland: Brisbane; N. S. Wales: Chatswood, Condobolin, Forest Reefs, Blue Mountains, Sydney, Galston, Clifton, Tamworth; Victoria.

Heteromastix McDonaldi, Lea, P. L. S., N.S.W., 1895, p. 234.

In the type male the 9th joint of the antennae is greatly inflated and has a deep apical fovea. A male from Galston has the 9th joint also inflated but to a less noticeable extent, and the fovea is also smaller. A male from Launceston agrees with the Galston specimen in the 9th joint, but has the legs entirely dark.

The elytral punctures are rather coarse and almost regular, but become very small at the apex.

Hab. N. S. Wales: Armidale, Galston; Tasmania: Launceston, Strahan.

* As either of these may be the true *galeatus*, I have not described them.

ANTICUS, Blackb., T. R. S., S.A., 1892, p. 221.
Hab. N. S. WALES : Blue Mountains.

MIRABILIS, Lea, P. L. S., N.S.W., 1895, p. 235.
Hab. QUEENSLAND : Barron Falls.

CRASSICORNIS, Lea, *l. c.*, p. 236. (*Figs.* 31, 37.)
Hab. QUEENSLAND : Cairns, Kuranda.

HETEROMASTIX DISTORTUS, n. sp. (*Figs.* 32, 40, 112.)

♂. Dark brown ; prothorax, base of antennae, legs (except the tarsi, base of hind femora and apex of hind tibiae) flavous.

Head wide, depressed between eyes, impunctate, or almost so. Antennae long, 3rd–5th joints curiously inflated and distorted, 4th largest of all but no longer than 6th. *Prothorax* about twice as wide as long, sides regularly rounded. *Elytra* densely and minutely punctate, with traces of feeble raised lines. Penultimate segment of *abdomen* semicircularly excised. Front *tibiae* deeply notched at apex ; basal joint of front tarsi strongly curved.

Length 5½ mm.

Hab. N. S. WALES, Sydney (type in Macleay Museum).

The two specimens before me are both injured ; one having the head partly eaten and both with the terminal joints of antennae missing; they may also be somewhat faded and the parts described as dark brown may possibly be black in living specimens. The antennae and front legs of the male (the only sex known to me) are so peculiar, however, that it cannot be mistaken. The 4th joint of the antennae is very peculiar, from one direction it appears widest at the base, from another at the apex ; the 5th is lobed near the base and slightly shorter than the 6th ; each of the three distorted joints is obliquely produced at the apex. The head towards the base appears to be obliquely strigose, but this appearance is due solely to the pubescence.

HETEROMASTIX MACLEAYI, n. sp. (*Fig.* 33.)

♂. Flavous ; elytra (base and sides diluted with flavous) and abdomen dark brown ; metasternum somewhat paler ; three terminal joints of antennae infuscate.

Head wide. Antennae rather long and stout ; 9th joint long, strongly inflated and foveate near apex ; 11th distinctly longer than

10th, but slightly shorter than 9th. *Prothorax* twice as wide as long, apex slightly wider than base, sides rounded but not quite regularly so; with submarginal punctures. *Elytra* densely and rather coarsely punctate, the punctures nowhere confluent but connected in places by feeble transverse ridges.

Length 2¾ mm.

Hab. QUEENSLAND: Cairns (type in Macleay Museum).

Owing to shrinkage the abdomen cannot be satisfactorily examined, but the penultimate segment is apparently semicircularly excised as in the males of other species. Its small size and bicoloured elytra will readily distinguish it from *fusicornis* and *McDonaldi*, the two previously described species having the 9th joint inflated.

HETEROMASTIX FLAVIFRONS, n. sp. (*Figs.* 44, 45, 46.)

♂. Black; muzzle, prothorax, two basal joints of antennae and lower surface of 3rd, front legs (tarsi excepted), parts of four hind coxae, of femora and of tibiae flavous or almost so.

Head convex, with several very indistinct impressions. Antennae stout, moderately long; 3rd–9th joints triangular, 10th produced at one side of apex, 11th considerably longer than 10th and constricted on one side. *Prothorax* twice as wide as long, sides regularly rounded. *Elytra* densely and rugosely but not coarsely punctate; with traces of feeble raised lines. Penultimate segment of *abdomen* deeply excised but not quite to base, the preceding segment widely and rather deeply emarginate.

Length 5–6 mm.

♀. Differs in having the antennae shorter, 11th joint simple although longer than 10th; the prothorax somewhat wider, and the abdomen simple.

Hab. N. S. WALES: Armidale (*W. W. Froggatt*).

The 11th joint of the male from one direction appears to be of an elongated reniform shape and almost as wide as the 10th joint; from another direction it appears to be much narrower and almost lanceolate. In this (as in many other) species, on each side of the prothorax at the base, there may often be seen a small tuft of pubescence (never distinct, however), which occasionally causes the posterior angles to appear acute. The elytral sculpture is not quite so coarse as in *gagaticeps*; from which species it also differs in having the muzzle pallid and 11th joint of different shape.

HETEROMASTIX FRATER, n. sp. (*Fig.* 47.)

♂. Black; muzzle and lower surface of head, prothorax, scutellum, legs (tarsi and apex of four hind tibiae infuscate) and three basal joints of antennae flavous.

Shape much as in the preceding species.

Length 4¾–5½ mm.

Hab. N. S. WALES: Jenolan (*J. C. Wiburd* and *A. M. Lea*), Mittagong (*W. W. Froggatt*).

The antennae resemble those of the preceding species but are distinctly thinner, the 10th joint is more produced at the apex, and the 11th at the base. The females are smaller than the females of that species and have much shorter and thinner antennae; the scutellum is pale and a greater portion of the muzzle and legs is pale. Nevertheless, the two are very closely allied.

HETEROMASTIX PALLIPES, n. sp. (*Figs.* 48, 49.)

♂. Black; prothorax, scutellum, legs (two apical joints of tarsi slightly infuscate) and two basal joints of antennae flavous.

Head comparatively small. Antennae long; 10th joint wide, strongly produced at apex; 11th long and distorted. *Prothorax* more than twice as wide as long, sides regularly rounded. *Elytra* very densely and rugosely but not coarsely punctate. Penultimate segment of *abdomen* widely semicircularly excised.

Length 3¾ mm.

Hab. N. S. WALES: Sydney (*A. M. Lea*).

Moderately close to *gagaticeps*, but with entirely pallid legs and scutellum; the antennae are considerably longer, the 11th joint is much longer, and the apical portion projects at about 45° from the rest of the joint; the prothorax is wider and the elytral punctures are considerably smaller. From the preceding species it differs in having longer antennae, 11th joint of different shape and by its dark muzzle. The antennae are much longer and thinner than in any of the allied species; the 10th joint from one direction appears to be wide and at the apex feebly emarginate, from another direction it is seen to be strongly and obliquely produced; the 11th from one direction appears long, thin and slightly constricted in the middle, from another it appears to be joined at one corner to the 10th, with—from its outer base—a distinct spur projecting

outwards, whilst the apex is produced directly outwards. The whole joint has not the least resemblance to a helmet as may be noticed in *gagaticeps*.

HETEROMASTIX LATICOLLIS, n. sp. (*Figs.* 34, 38.)

♂. Blackish; prothorax and scutellum flavous; front coxae and all the trochanters almost flavous.

Head wide. Antennae long and stout, 2nd joint much smaller than usual, 10th and 11th distorted. *Prothorax* almost thrice as wide as long, sides almost regularly rounded but slightly thickened in front, base gently sinuous. *Elytra* rugosely sculptured, slightly dilated posteriorly. Penultimate segment of *abdomen* semicircularly excised.

Length 5 mm.

♀. Differs in having the prothorax wider and antennae and abdomen simple.

Hab. QUEENSLAND: Cairns (types in Macleay Museum).

The 11th joint is more strongly curved than in the other species; at its base on one side it is grooved, with part of the 10th joint (which is also peculiarly distorted) resting in the groove; from another direction the two joints appear very different. The prothorax is wider than in any other species here recorded. The elytra though very densely are not distinctly punctate, and appear to be covered with small and very irregular granules, somewhat after the style of *Telephorus nobilitatus*, etc., there are also on them traces of feeble raised lines, which are also broken up into indistinct granules. In the pair before me the male is the larger.

HETEROMASTIX DECIPIENS, n. sp. (*Fig.* 39.)

♂. Black; prothorax, front legs (tarsi excepted) apex of hind femora, base of hind tibiae and two basal joints of antennae flavous.

Head convex and smooth. Antennae rather long, 10th joint slightly produced at one side of apex but not distorted; 11th almost as long as the three preceding combined, distinctly constricted at about two-fifths from its apex. *Prothorax* almost twice as wide as long, sides regularly rounded. *Elytra* densely but not coarsely or rugosely punctate. Penultimate segment of *abdomen* with an almost parallel-sided incision to extreme base.

Length 5 mm.

Hab. N. S. WALES: National Park (*A. M. Lea*).

Coloured much as *gagaticeps*, even to the black muzzle; but the 10th joint but little different to the 9th and certainly not distorted; the 11th, however, is very different, appearing almost as two joints and without the peculiar lobe projecting backwards as in *gagaticeps* and most of the allied species; in fact, at first the antennae appear to be distinctly 12-jointed. The elytral punctures are smaller than in *gagaticeps*, but are more clearly defined, although this may be partly due to abrasion, as the elytra are almost glabrous in the only specimen before me; which also is without the middle pair of its legs.

HETEROMASTIX TENUIS, n. sp. (*Fig.* 91.)

♂. Black, shining; elytra with a slight bluish gloss. Elytra more sparsely pubescent than usual.

Head impunctate; eyes above the average size. Antennae long and thin, 11th joint distinctly longer than 10th. *Prothorax* distinctly less than twice as wide as long, disc more convex than usual; each side of base with a small but distinct subtriangular notch. *Elytra* longer and thinner than usual; densely and moderately coarsely punctate. Penultimate segment of *abdomen* semicircularly excised.

Length $4\frac{1}{4}$–$4\frac{3}{4}$ mm.

Hab. TASMANIA: Mount Wellington (*A. M. Lea*).

The antennae to the eye appear to be as long as the body, but by measurement they are seen to be really a trifle shorter. The margins of the prothorax from some directions appear to be supplied with very minute setiferous granules. The elytral punctures are often elongate and three or four are frequently separated from the others by short transverse or oblique wrinkles; they are almost as large as *fusicornis*. The insect itself is longer and thinner than any of its congeners here recorded; it is also the only one with the least trace of blue on the elytra. Even apart from colour, however, the species is very distinct.

HETEROMASTIX NIGER, n. sp.

♂. Black. Elytra more densely clothed with whitish pubescence than usual.

Head wide and indistinctly punctate. Antennae rather long; 2nd joint more than half the length of third, 11th distinctly longer

than 10th. *Prothorax* twice as wide as long, sides thickened, with the anterior angles obliquely cut off. *Elytra* densely and moderately coarsely punctate, the punctures in irregular lines, between which are smaller punctures. Penultimate segment of *abdomen* excised almost to extreme base.

Length 3 mm.

♀. Differs in having slightly shorter antennae, and with the penultimate segment of abdomen feebly curved throughout.

Hab. TASMANIA: Launceston, Zeehan (*Aug. Simson*), Mole Creek, Hobart, Mount Wellington (*A. M. Lea*); VICTORIA: Oakleigh (National Museum).

This is the only entirely black species known, from the preceding species, to which in colour it approximates, it differs in being much shorter, prothorax wider and differently shaped; antennae shorter, etc. In an occasional specimen the sides of the prothorax are diluted with flavous.

HETEROMASTIX FLAVIPENNIS, n. sp.

♂. Black; prothorax, elytra, part of mandibles and of coxae flavous.

Head rather narrower than usual; densely and not very minutely punctate. Antennae long and thin. *Prothorax* not twice as wide as long, front angles strongly rounded, hind very feebly produced; widest at apical third. *Elytra* densely, rugosely and moderately coarsely punctate; with numerous irregular feebly raised lines Penultimate segment of *abdomen* widely and rather shallowly emarginate.

Length $5\frac{1}{2}$ (♀ $6\frac{1}{2}$) mm.

♀. Differs in being larger and wider, with narrower head and prothorax, shorter and stouter antennae and simple abdomen.

Hab. W. AUSTRALIA: Karridale (*A. M. Lea*).

This is the only species known to me in which the head is seen to be distinctly punctate; it is also the only one (except a species of which I have seen but a female) with the elytra entirely pallid. In the male the 3rd–11th joints are almost exactly the same lengths, the 11th being just perceptibly longer than the 10th; in the female, however, the 11th joint is distinctly longer than the 10th, although shorter than the corresponding joint of the male. The elytral punctures are frequently confluent.

HETEROMASTIX DISCOFLAVUS, n. sp.

♂. Of a smoky-brown, varying to blackish-brown on head and sides of prothorax; greater portion of prothorax flavous; elytra obscure flavous; a wide median and a narrow lateral space darker.

Head wide and indistinctly punctate. Antennae long and thin, 11th joint longer than 10th. *Prothorax* twice as wide as long, disc rather more convex than usual. *Elytra* densely and coarsely punctate throughout. Penultimate segment of *abdomen* semicircularly excised to base.

Length $3\frac{2}{3}$ (♀ $4\frac{1}{2}$) mm.

♀. Differs in being larger, with narrower head and shorter and stouter antennae (those of the male being slightly longer than the body, whilst in the female they are distinctly shorter), legs shorter and abdomen simple.

Hab. TASMANIA (types in Aug. Simson's collection).

The elytral colours are not sharply defined, the darker portions being of the nature of stains. In the male the sides of the prothorax are more reflexed than usual and almost perfectly parallel, so that the segment itself appears to be transversely oblong; in the female the sides are almost regularly rounded. The elytral punctures are coarser than in any other species known to me; on the male they are almost seriate in arrangement, but on the female exhibit a strong tendency to become confluent and rugose.

HETEROMASTIX OCCIDENTALIS, n. sp.

♂. Black, prothorax flavous.

Head wide and indistinctly punctate. Antennae long and thin, 11th joint scarcely longer than 10th. *Prothorax* scarcely twice as wide as long, sides thickened and inflated in the middle. *Elytra* very densely and rugosely but not coarsely punctate; with numerous feeble transverse ridges. Penultimate segment of *abdomen* widely semicircularly excised.

Length 4–$5\frac{1}{2}$ mm.

♀. Differs in being larger and wider, with distinctly shorter antennae and simple abdomen.

Hab. W. AUSTRALIA: Swan and Vasse Rivers (*A. M. Lea*).

From some directions, especially in the females, the elytra appear to be covered with minute granules, but this

appearance is deceptive. In appearance it is much like large specimens of *pusillus*, or small ones of *pauxillus*, the size being almost constantly intermediate between the two. From *pauxillus* it differs in the prothoracic margins being considerably thicker and rather suddenly inflated in the middle, much as in *pusillus*; from the latter species it differs in the antennae being longer and entirely black and its elytral punctures coarser. I have seen numerous specimens of both this species and *pusillus* from Western Australia and the differences mentioned seem to be quite constant; the two species, in fact, seem (in W. Australia) to be related to each other much as *perabundans* and *pauxillus* are in Tasmania.

HETEROMASTIX PERABUNDANS, n. sp.

♂. Black, prothorax flavous; base of tibiae and lower surface of three basal joints of antennae obscure testaceous.

Head scarcely visibly punctate and less transverse than usual. Antennae moderately long and stout; 2nd joint more than half the length of 3rd, 11th stouter and longer than 10th. *Prothorax* and *elytra* sculptured as in *niger*, except that the punctures are somewhat coarser. Penultimate segment of *abdomen* semi-circularly excised.

Length 3½ mm.

♀. Differs in being slightly larger than the male, with just perceptibly shorter antennae, prothorax slightly more transverse and the penultimate segment of abdomen gently curved throughout.

Hab. TASMANIA: Hobart, Mount Wellington, Huon River (*H. H. D. Griffith*, *Aug. Simson* and *A. M. Lea*).

The sculpture and pubescence are almost exactly the same as in *niger*; in fact, but for the colour of the prothorax the two species would be scarcely distinguishable. From *pusillus* it differs in having the elytra much more coarsely punctate and the prothorax less angularly dilated, the dilated portion also being basal and median instead of subapical. The base of the prothorax is usually stained with black.

Probably, during several months of the year this is the commonest of all insects on flowers about Hobart and Mount Wellington; I have seen tens of thousands of specimens in my beating umbrella at the same time.

HETEROMASTIX NIGRIPES, n. sp.

♂. Black ; prothorax reddish-flavous.

Head rather strongly convex. Antennae long and moderately stout ; 2nd joint one-third the length of 3rd ; 11th about twice the length of 10th and distinctly, although not very decidedly, constricted at its middle. *Prothorax* twice as wide as long, sides regularly rounded. *Elytra* very densely, rugosely and rather coarsely punctate. Penultimate segment of *abdomen* semicircularly excised.

Length 4½ mm.

♀. Differs in having shorter antennae, the 2nd joint of which is proportionately longer and the 11th shorter (although distinctly longer than the 10th) and not constricted in middle, being in fact slightly widest in front of the middle ; prothorax rather wider ; legs shorter and abdomen simple.

Hab. TASMANIA : Launceston, Beaconsfield, Karoola, George Town, Denison Gorge, East Tamar, Zeehan, Huon River, Hobart, Frankford, Mount Wellington (*Aug. Simson, H. H. D. Griffith* and *A. M. Lea*).

From the allied species, except *latus*, it can be readily distinguished by the long and constricted terminal joint of antennae in the male. The whole insect is larger and the sides of the prothorax are different to those of *perabundans*, in the company of which species it is frequently taken. In the male the antennae are not much shorter than the body. The elytral punctures are about as large as in *fusicornis* but decidedly denser. As in a number of other species the base of the prothorax is sometimes stained with black. From *victoriensis* it differs in being shorter, with shorter antennae, entirely black legs, less coarsely punctate elytra and sides prothorax, which also is without submarginal punctures.

HETEROMASTIX SIMPLEX, n. sp.

♂. Black ; prothorax, mandibles, knees, trochanters, front coxae and two basal joints of antennae more or less flavous.

Head strongly transverse ; eyes larger than usual. Antennae moderately long and rather stout ; 2nd joint more than half the length of 3rd, 11th about one-third longer than 10th. *Prothorax* twice as wide as long, sides rounded except at extreme base ; with indistinct submarginal punctures. *Elytra* densely, moderately

coarsely and somewhat rugosely punctate. Penultimate segment of *abdomen* deeply semicircularly excised.

Length 4½ mm.

Hab. N. S. Wales: Jenolan (*A. M. Lea*).

Differs from the species I suppose to be *victoriensis* in being smaller and wider, legs somewhat differently coloured and antennal joints (especially the 9th–11th) differently proportioned. The elytra are more coarsely sculptured than in *gagaticeps*, to the female of which it bears a striking resemblance; in fact, but for the abdomen being essentially masculine I should have imagined the unique specimen before me to be a female of that species. The elytral punctures are the same size but much denser than in *fusicornis*; the rugose appearance is caused by small transverse wrinkles, but each puncture is usually clearly defined. From *pauxillus*, it differs in being more compact, antennae much shorter, basal joints pale, the 2nd proportionately longer, elytral punctures more sharply defined, legs not entirely black, prothorax less transverse, etc.

Heteromastix latus, n. sp.

♂. Black; prothorax, parts of muzzle, mandibles, front legs (tarsi, apex of tibiae and part of base of femora infuscate), middle knees and base of hind tibiae more or less flavous.

Head strongly transverse. Antennae somewhat as in *nigripes*. *Prothorax* about twice as wide as long, sides almost regularly rounded. *Elytra* shorter and wider than usual, densely and rugosely but rather finely punctate. Penultimate segment of *abdomen* semicircularly excised.

Length 5½ mm.

♀. Differs in being slightly wider, prothorax more transverse, antennae shorter, 11th joint not constricted in middle and abdomen simple.

Hab. N. S. Wales: Forest Reefs (*A. M. Lea*).

I have referred this species and *nigripes* to the group having simple antennae, although the apical joint is somewhat constricted in the middle in the male, apparently denoting an approach to the group about *gagaticeps*. The 10th joint, however, is perfectly simple. The antennae of this species are much as in *nigripes*, except that they are somewhat shorter and stouter and with the 11th joint shorter and very feebly constricted in the middle; but the

insect itself is much wider, the elytra are less closely punctured, and parts of the legs and muzzle are pallid; the head also is distinctly more transverse and less convex. I have numerous specimens of both species and seen side by side they look very distinct. The elytra are wider than in *gagaticeps*, and the punctures are smaller and not quite so dense.

HETEROMASTIX GENICULATUS, n. sp.

♂. Head, prothorax, scutellum, base of 1st joint of antennae, front coxae and all the knees flavous; elsewhere black.

Head less transverse and eyes larger than usual. Antennae long and thin; 2nd joint less than half the length of 3rd, 11th just perceptibly longer than 10th. *Prothorax* not twice as wide as long, sides gradually dilated from base to near apex, but front angles strongly rounded; disc rather strongly convex. *Elytra* distinctly wider than base of prothorax; densely, rugosely, but not coarsely punctate. Penultimate segment semicircularly excised. *Tarsi* unusually thin.

Length 6 mm.

Hab. N. S. WALES: Burrawang (*T. G. Sloane*), National Park, Sydney (*A. M. Lea*).

There are one male and two female specimens before me, the females being both smaller (5 mm.) than the male and with shorter antennae and simple abdomen. In the male the antennae are almost as long as the body. The elytra from some directions appear to be covered with small granules, but this appearance is deceptive. From *anticus* * (the only other described species having both the head pallid and antennae simple) it differs in being larger with antennae and legs not entirely pallid, elytra with denser and smaller punctures, prothorax narrower, etc.

HETEROMASTIX IMITATOR, n. sp.

♂. Black; prothorax, knees, trochanters and front coxae and femora flavous; tip of muzzle obscurely flavous, antennae (basal joints flavous) tibiae and tarsi infuscate.

---

* The antennae of the male of *anticus* are described as having the 3rd–5th joints somewhat dilated; these joints, however, are not distorted as in *distortus*, but are slightly wider than those preceding or following them, and much as they are in many other species of the genus. Mr. Blackburn has kindly presented me with a male of *anticus*.

Head scarcely visibly punctate. Antennae rather thin ; 11th joint about twice the length of 10th, compressed towards base, the basal portion lobed and fitted into 10th. *Prothorax* twice as wide as long, sides slightly dilated towards apex. *Elytra* with dense subrugose and rather small punctures. Penultimate segment of *abdomen* widely notched.

Length 3 mm.

Hab. N. S. Wales: Wentworth Falls (*Aug. Simson*).

In appearance very close to *pusillus* but with the 10th and 11th joints distorted; *bicolor* is about the same size but the two terminal joints are very different and the antennae and legs are differently coloured. It is much smaller than *flavifrons*, the antennae are thinner and the terminal joints of different shape. From one direction the 10th joint appears to be wider than any of the others and semicircularly notched at the apex, with the inflated base of the 11th fitting into the notch ; from another direction it appears to be no wider than the others and the 11th appears to be normally attached to it and but little longer, whilst from the other direction the 11th appears to be twice as long; from still another direction the 11th has a faint resemblance to the helmet-like shape of that joint in *gagaticeps*.

Heteromastix amabilis, n. sp.

♂. Black ; prothorax, trochanters, parts of coxae (the front pair entirely) and knees flavous.

Head longer and with more prominent eyes than usual, with a wide but feeble elevation continuous between eyes ; scarcely visibly punctate. Antennae extending to apex of elytra, rather thin, all the joints (except the 2nd) subequal in length, but the 11th noticeably longer than 10th. *Prothorax* about once and one half as long as wide, sides strongly reflexed and increasing in width to near apex, disc obtusely bilobed. *Elytra* with dense, rather small and subrugose punctures. Penultimate segment of *abdomen* semicircularly excised.

Length $4\frac{1}{2}$ (♀ 6) mm.

♀. Differs in being larger, the antennae shorter (though longer than in many other species), the ridge between the eyes scarcely traceable, and the prothorax more transverse and with its disc scarcely visibly bilobed.

Hab. N. S. Wales: National Park (*A. M. Lea*), Blue Mountains (*H. J. Carter*).

In the male the basal joint of the antennae is almost entirely pale, in the female it is pale only at the extreme base. In the female specimen the mandibles are exposed, are pale at the base and dark brown at the tip. In shape it is almost identical with *geniculatus*, but its black head at once distinguishes it from that species. From *victoriensis* it is distinguished by the upturned front angles of prothorax and absence of marginal punctures and by the much smaller elytral punctures. From *pauxillus* it differs in the much less transverse prothorax, with different anterior angles, stouter antennae, bicoloured legs and much finer elytral punctures. In the table it is placed beside *pusillus*, but it is much larger than that species; the prothorax is less transverse, antennae considerably longer, legs differently coloured, etc.

HETEROMASTIX INFLATUS, n. sp. (*Fig.* 35.)

♂. Black; prothorax and basal half of elytra flavous; trochanters of a dingy brown.

Head densely and minutely punctate, largely but indistinctly impressed in front. Antennae rather long and thin, 3rd–6th joints more or less distorted. *Prothorax* about twice as wide as long, sides strongly reflexed, of equal width near base and apex. *Elytra* dilated beyond the middle, each separately rounded at apex; with dense, rather small, subrugose punctures becoming very small towards base. Penultimate section of *abdomen* triangularly excised almost to base.

Length 4½–6 mm.

Hab. N. S. WALES: Gosford (*H. J. Carter*).

The elytra are distinctly inflated just beyond the middle with their dark portion slightly advanced along the suture. There are three males before me and the antennae (except to a slight extent in degree) are alike in all; the distorted joints, however, alter their appearance with the point of view. The 3rd is about the length of the 1st, slightly curved inwardly and the apex produced obliquely outwards, the 4th is considerably shorter than the 3rd, slightly inflated on one side and incurved on the other and feebly produced at the apex (from another direction it appears to be of equal width at base and apex, and feebly constricted in the middle), the 5th is the largest joint of all, at its base it is strongly produced (obtusely dentate) on one side, with a corresponding depression on the other; the 6th is

slightly bulged out at the base on one side ; the remaining joints are simple or almost so.

HETEROMASTIX DOLICHOCEPHALUS, n. sp.

♀. Black ; elytra reddish-flavous, suture and tip black ; parts of coxae obscurely diluted with red. Moderately clothed with greyish pubescence, very short on head but moderately long elsewhere.

Head longer than wide, with several feeble impressions in front ; punctures small and indistinct. Eyes small and not prominent. Antennae rather short, moderately stout, median joints stouter than the others, but simple. *Prothorax* about once and one half as long as wide, disc rather strongly convex, sides rather strongly margined, all the margins more or less angular and distinctly raised, widest near apex, impunctate. *Scutellum* transverse. *Elytra* not much wider than widest part of prothorax, almost conjointly rounded at apex, with dense but rather small and subrugose punctures. *Legs* moderately long ; tarsi 4th joint wide and deeply bilobed ; claws almost simple.

Length 6 mm.

Hab. W. AUSTRALIA : Swan River (*A. M. Lea*).

It may be necessary to place this species in a new genus eventually, but as I only know the female I have not considered it advisable to propose one now for its reception. The head may normally be partially concealed by the prothorax, but in the type its full length is exposed; in any case, however, it is much longer than in any other species of *Heteromastix*. I cannot see the buccal appendages clearly, but behind the mentum is a deep sub-conical excavation, the base of which is on the mentum. If the tibiae are really spined at the tip, the spine is so small as to be quite concealed. The dark sutural marking is on each elytron rather more than one-third of its width at the base, but at the apex it is only about one-fifth.

Subfamily MALACHIIDES.

Genus LAIUS, Guer., Voy. Coq., p. 78 ; Lacord., Gen. Coleopt., IV, p. 381 ; Fairm., Journ. Mus. Godeffr., 1879, p. 101.

The species of this genus are all of small or comparatively small size ; and usually reddish, with metallic-blue, purple or green markings. The antennae are short, fairly stout

and apparently 10-jointed, but the true 2nd joint is hidden by the 1st, the true 3rd (here referred to as the 2nd, as it is by other entomologists) being usually enormously inflated in the males*; the 1st joint is also more or less inflated. The front femora are sometimes deeply groved in the males, and the 2nd joint of the front tarsi in the males is always of peculiar shape and tipped with black. The females of many species are very closely allied, and it is difficult to satisfactorily identify some of them from the descriptions; but the males are always distinct, and given satisfactory descriptions their identification should be easy.

In addition to the species here noted or described there are about twenty others before me; all, however, represented by discoloured males or by females only, and I have not considered it advisable to describe them.

The following species are unknown to me:—

Guttulatus, Fairm.—A small and evidently very distinct species, having the prothorax scarcely transverse. It seems to be allied to *sinus*. The type was probably a female.

Fastidiosus, Fairm.—A small species with elytral markings much as in *bellulus* and many others, but the prothorax with "punctis 2 oblongis fuscis." The type was probably a female.

Insignicornis, Fairm.—A small species evidently resembling *eyrensis*, *carus*, etc. Both sexes were known to Fairmaire, but all he says of the 2nd joint of the antennae of the male is that it is inflated.

Rufovirens, Fairm.—Evidently very close to the above species. The type was probably a female.

Oblongosignatus, Fairm.—A small species evidently rather closely allied to *trisignatus*.

Asperipennis, Fairm.—Appears to be a very distinct species of medium size, with the elytra entirely metallic-blue and granulated.

Quinqueplagiatus, Fairm.—Evidently a very ordinary-looking species of medium size and allied to *conicicornis*, *plagiaticollis*, *villosus*, etc.

Rugulipennis, Fairm.—Evidently allied to the above species; I have seen numerous species which almost agree with the description.

* It is to be noted that this joint usually looks different in shape, in almost every direction it is viewed from, and figures have been given of the antennae of several species as viewed from different aspects.

Verticalis, Fairm. (*nec* W. S. Macl.). Commented on below.

Eremita, Blackb.—A small species having the head red and antennae entirely black and the elytral markings piceous. It should be easily recognised.

Pretiosus, Blackb.—A small species of quite ordinary colouring, except that in the middle of the elytra there is large, isolated, diamond-shaped, red spot. The type was a female.

Variegatus, Blackb.—A medium-sized species with peculiar apical markings on the elytra; no closely allied species are described, but two are known to me, both unfortunately females (as was probably the type).

The others * may be tabulated as follows:—

A. Upper surface entirely dark	*alleni*, n. sp.
AA. Upper surface not entirely dark.	
B. Prothorax with the apex strongly produced over head	*armicollis*, n. sp.
BB. Prothorax trilobed at apex . . .	*sculptus*, n. sp.
BBB. Prothorax simple at apex.	
C. Prothorax entirely dark	*trisignatus*, Germ.
CC. Prothorax partly dark.	
a. Antennae simple in both sexes .	*flavopictus*, n. sp.
aa. Antennae with the basal joints distorted in male.	
b. Extreme apex of elytra dark .	*quinquenotatus*, Fairm.
bb. Extreme apex pallid.	
c. Pale markings of elytra apical only	*distortus*, Blackb.
cc. Pale markings apical and median.	
d. Second joint of antennae with two strong projections in male . . .	*plagiaticollis*, Fairm.
dd. Second joint differently formed.	
e. Head of male deeply transversely and longitudinally impressed .	*orthodoxus*, n. sp.
ee. Head of male not so impressed.	

* *Cavicornis* was described after this table was prepared.

f. Second joint of antennae pallid.	
g. Head smooth and impunctate or almost so	*planiceps*, Lea.
gg. Head more or less coarsely punctate.	
h. Upper edge of 2nd joint of antennae in male rounded . . .	*villosus*, Lea.
hh. Upper edge distinctly bilobed . .	*conicicornis*, Blackb. *rugiceps*, Lea.
ff Second joint of antennae more or less dark.	
i. Front tibiae and tarsi pallid. . .	*nodicornis*, Blackb.
ii. These almost entirely dark . .	*nidicola*, Lea. *intermedius*, Lea. *orcicornis*, Lea.
CCC. Prothorax entirely pallid.	
D. Prothorax scarcely transverse .	*sinus*, Lea.
DD. Prothorax strongly transverse.	
E. Dark apical markings densely and regularly punctate.*	
j. Antennae much shorter than usual	*tarsalis*, n. sp.
jj. Antennae longer than usual .	*major*, Blackb.
EE. Dark apical markings irregularly or not at all punctate.	
F. Apex of elytra dark.	
k. Size very small	*egenus*, Lea.
kk. Size medium	*cinctus*, Redt.
FF. Apex of elytra pallid.	
G. Dark subapical markings not continuous across suture.†	

* *Verticalis*, Macl., should be included here, but as I do not know the male I have not included it.

† *Eyrensis*, Blackb., should be included here, but as I do not know the male I have not included it.

l. Larger portion of head pallid	*pallidus*, Lea.
ll. Larger portion dark . .	*carus*, Lea.
GG. Dark subapical markings continuous across suture.	
H. Second joint of antennae partly dark.	*cyanocephalus*, Lea.
HH. Second joint entirely dark	*bellulus*, Guér.

Laius verticalis, W. S. Macl. (*Malachius*), King's Survey, II, 1827, App. p. 442. (*Fig.* 124.)

I have examined the type specimen of this species; it bears a label in the late W. S. Macleay's handwriting, "*Malachius verticalis*, Capt. King, Australasia." It is a female measuring 7 mm. in length, and allied to *major* and *tarsalis*. From the latter it differs in its elytra being entirely without traces of elevated lines and the markings of different shape, and occupying a larger area, head without interocular ridges (this however may be a masculine character only), colour of legs, etc. From the female of the former it differs in being shorter and broader, antennae much shorter and elytral markings of different shape and size.

The antennae are almost black at the apex, and gradually diminish in intensity of colour, the two basal joints being entirely pallid. The legs are not entirely dark (as would appear from the original description) as the knees and anterior femora are pallid. The elytral punctures are as dense and regular on the apical markings as elsewhere, and exactly resemble those of *major*.

A female from Roebuck Bay appears to belong to this species, but differs from the type in having the entire femora (except the apex of the hind pair) pallid. It is clothed (as is the type) with fine whitish pubescence; its scutellum (as is also that of the type) is deep black. The ground-colour of its elytra is flavous, and certainly of a different shade to that of the type, which, however, is greatly discoloured by age (it is about eighty years since it was taken).

The species was omitted from Masters' catalogue, probably on account of there being a *Laius verticalis* by Fairmaire. The latter species (described from Peak

Downs in Queensland) I have not been able to identify, and do not believe that it can be satisfactorily identified from the brief original description.

LAIUS TRISIGNATUS, Germ., Linn. Ent., III, p. 182; Fairm., Journ. Mus. Godeffr., 1879, xiv, p. 104. (*Figs.* 125, 126, 127.)

In the male the end joint of antennae is concave above and convex below as in many other species of *Laius*. I have seen no specimens having the sutural marking obsolete, but in the Macleay Museum there is a male having this marking obscurely connected with the lateral ones, and there is a specimen from the Swan River in which the lateral markings are just traceable; a female from Port Denison is above the normal size, with the elytra more coarsely punctate and the pallid markings covering a greater area than usual.

Hab. QUEENSLAND: Port Denison, Cairns; S. AUSTRALIA: Adelaide; W. AUSTRALIA: Swan River.

LAIUS BELLULUS, Guér., Voy. Coq., p. 78; Boisd., Voy. Astr., II, p. 135; Germ., Linn. Ent., III, 1848, p. 182; Macl., Trans. Ent. Soc., N. S. Wales, II, p. 65; Fairm., Journ. Mus. Godeffr., 1879, XIV, p. 103. (*Fig.* 128.)

The insect redescribed by Germar as this species is common on sea-beaches, and has the dark subapical markings of the elytra with coarse punctures in front and close to the suture, but elsewhere these markings are impunctate or almost so.

The specimen identified as *bellulus* by Macleay from Gayndah is a female and has the dark subapical markings coarsely punctured throughout; it certainly belongs to a different species to the common S. Australian one.

Hab. S. AUSTRALIA; W. AUSTRALIA; N. S. WALES.

LAIUS CINCTUS, Redt. (*Apalochrus*), Reis. Novara, II, p. 106; Fairm., Journ. Mus. Godeffr., XIV, 1879, p. 103.

mastersi, Macl., Trans. Ent. Soc., N. S. Wales, II, p. 265.

femoralis, Blackb., P. L. S., N.S.W., 1891, p. 531; Lea, *l. c.*, 1898, p. 572. (*Figs.* 51, 65, 113, 114, 129, 130.)

I have examined the types of *mastersi*, they are male and female. The male has excavated anterior femora,

strongly concave (the inside portion pallid) 2nd * joint of antennae and dark apex of elytra,† and agrees exactly with Blackburn's description of *femoralis*. In the species the elytral fascia varies considerably in width; on specimens from Queensland and the western parts of New South Wales, being, as a rule, larger than on specimens from Victoria and Tasmania.

Fairmaire gives *mastersi* as a synonym of *cinctus*,‡ and I previously (apparently not on good grounds) doubted this. Blackburn appeared to regard *femoralis* as distinct from *cinctus* partly on account of colour and partly on account of the shape of the prothorax; but the dark portions of the elytra in most species of *Laius*, and certainly in the present one, are subject to considerable variation, and, as above noted, the fascia is of variable width. Blackburn admitted not knowing the male of *cinctus*, of which Redtenbacher says of the prothorax "gegen das Schildchen etwas erweitert."

Hab. Queensland; N. S. Wales; Victoria; Tasmania; S. Australia.

Laius verticalis, Fairm., Pet. Nouv. Ent., 1877, p. 174.

The original description of this species is so worthless that I think it should be regarded as non-existent, at any rate until the type can be examined and further information obtained about it; the description is simply a short comparison with *bellulus*, and may have been drawn up from a variety of that species. In any case Fairmaire's name must fall, as the name was preoccupied by W. S. Macleay's *Malachius verticalis*, which, as noted above, is a true *Laius*.

Hab. Queensland: Peak Downs.

Laius quinquenotatus, Fairm., Pet. Nouv. Ent., 1877, p. 174; Journ. Mus. Godeffr., 1879, p. 102. (*Fig.* 140.)

There is a female from Planet Downs in the Macleay Museum which appears to belong to this species; it has all

* Herr Redtenbacher correctly describes the 2nd joint as being quite in the top of the first, and the 3rd as much longer and thicker than the 4th; but I think it convenient to regard the true 2nd joint as non-existent; as in most species of *Laius* it is either traceable with extreme difficulty or quite invisible.

† In the description of *cinctus* the legs are not even mentioned.

‡ A combination of characters peculiar to this species.

parts of the elytra very densely (more densely than in any other species before me) punctate; and the pallid triangular spot common to both elytra does not extend quite to the apex, but is distinctly truncated at a short distance before it.

Hab. Queensland: Rockhampton, Planet Downs.

Laius conicicornis, Blackb., T. R. S., S.A., 1886, p. 262. (*Figs.* 52, 131.)

The markings on the head of this species are variable and to a greater extent than described by Blackburn. The female differs from the male in having the head less densely punctate and only the muzzle pallid; the antennae simple; the elytra are somewhat inflated posteriorly, and the front tibiæ are not entirely pallid. There are several species having almost exactly similar elytral markings; but the 2nd joint of the male antennae renders the species very distinct.

Hab. S. Australia: Port Lincoln; Victoria: Brighton, Bacchus Marsh; N. S. Wales: Berrima, Rope's Creek.

Laius major, Blackb., P. L. S., N.S.W., 1888, p. 1426. (*Figs.* 53, 132.)

The female of this species differs from the male in being considerably longer (although no wider), the antennae slightly shorter and simple; the anterior tarsi simple; the prothorax more rounded and the elytral markings somewhat greenish and rather larger.

Hab. N. W. Australia: N. Territory; Queensland: Chillagoe, Brisbane.

Laius sinus, Lea, P. L. S., N.S.W., 1898, p. 562. (*Fig.* 54.)

In the original description the prothorax is described as "slightly longer than wide"; to the naked eye this appears to be the case, but by measurement it is actually a trifle wider than long.

Hab. N. S. Wales: Gosford.

Laius cyanocephalus, Lea, *l. c*, p. 563. (*Figs.* 66, 133.)

A female from Victoria differs from the type males in having the elytral markings entirely of a deep violet.

Hab. N. S. Wales: Whitton; Victoria; Queensland: Bowen.

Laius pallidus, Lea, *l. c.*, p. 565. (*Figs.* 55, 134.)

A variety of this species differs from the type in having the head infuscate at the base and the basal markings of elytra connected with the apical ones along (but not on) the suture.

Hab. W. Australia: Geraldton.

Laius rugiceps, Lea, *l. c.*, p. 568. (*Figs.* 67, 135.)

A male of this species in the Macleay Museum differs from the type in having the head almost entirely pallid, and the prothoracic marking much more strongly constricted towards the base.

Hab. W. Australia: Beverley, King George's Sound.

Laius intermedius, Lea, *l. c.*, p. 571. (*Figs.* 68, 136.)

A male before me differs from the type in being smaller and in having the dark markings of the elytra of a rather dingy (washed-out looking) violet colour, instead of a beautiful metallic violet blue.

Hab. W. Australia: Swan River.

Laius villosus, Lea, *l. c.*, p. 566. (*Figs.* 56, 69, 187, 138.)

There are before me one male and eight females* of what appears to be a variety of this species; they differ from the types in being larger (♂ 5 ¼ ♀ 6 mm.), in having the median red fascia interrupted so as to appear as three longitudinal marks, that on the suture being usually confined to the sutural thickening, although on one it is almost conjoined to the lateral ones; these are usually rather more than twice as long as wide.

Two specimens (sexes) in the Macleay Museum from Monaro are intermediate between the above variety and

* They were all taken by Dr. E. Jefferis Turner on Ben Lomond at an elevation of 4,500 feet.

the normal form; both of them appear to have the dark markings forming two longitudinal patches extending from the base, interrupted at the middle and terminating before the apex.

The female differs from the male in having the muzzle without the pallid triangle and without polished lateral spaces, the anterior legs almost entirely dark (in the type although not mentioned in the original description there is a blackish streak towards the apex of the anterior femora, which is also present in the varieties), and antennae simple with each of the two basal joints having a more or less distinct infuscate spot.

Hab. N. S. Wales: Forest Reefs, Queanbeyan, Mudgee, Oberon, Ben Lomond, Monaro.

GUTTULATUS, Fairm., Pet. Nouv. Ent., 1877, II, p, 174; Journ. Mus. Godeffr., 1879, XIV, p. 101.

Queensland: Peak Downs, Gayndah.

RUGULIPENNIS, Fairm., Pet. Nouv. Ent., 1877, p. 174; J. M. G., 1879, p. 102.

Queensland: Peak Downs.

PLAGIATICOLLIS, Fairm., Pet. Nouv. Ent., 1877, p. 174; J. M. G., 1879, p. 102; Lea, P. L. S., N.S.W., 1898, p. 572. (*Figs.* 57, 139.)

W. Australia: Pinjarrah.

QUINQUEPLAGIATUS, Fairm., Pet. Nouv. Ent., 1877, p. 174; J. M. G., 1879, p. 102.

Queensland.

INSIGNICORNIS, Fairm., Pet. Nouv. Ent., 1877, p. 174; J. M. G., 1879, p. 103.

Queensland: Peak Downs.

RUFOVIRENS, Fairm., Pet. Nouv. Ent., 1877, p. 174; J. M. G., 1879, p. 103.

Queensland: Gayndah.

FASTIDIOSUS, Fairm., Pet. Nouv. Ent., 1877, p. 174; J. M. G., 1879, p. 104.

Queensland: Peak Downs.

ASPERIPENNIS, Fairm., Pet. Nouv. Ent., 1877, p. 174; J. M. G., 1879., p. 104.

QUEENSLAND.

OBLONGOSIGNATUS, Fairm., Pet. Nouv. Ent., 1877, p. 174; J. M. G., 1879, p. 104.

QUEENSLAND : Peak Downs.

NODICORNIS, Blackb., T. R. S , S.A., 1886, p. 263. (*Fig.* 70.)

S. AUSTRALIA : Sedan; N. S. WALES : National Park.

DISTORTUS, Blackb., *l. c.*, p. 264.

S. AUSTRALIA : Port Lincoln.

EREMITA, Blackb., *l. c.*, 1895, p. 51.

CENTRAL AUSTRALIA : Oodnadatta.

VARIEGATUS, Blackb., P. L. S., N.S.W., 1888, p. 1426.

SOUTH AUSTRALIA : N. Territory.

EYRENSIS, Blackb., *l. c.*, 1891, p. 531.

S. AUSTRALIA : Lake Eyre.

PRETIOSUS, Blackb., *l. c.*, p, 532.

S. AUSTRALIA : Lake Eyre.

CARUS, Lea, P. L. S., N.S.W., 1898, p. 5, 64. (*Figs.* 58, 141.)

N.W. AUSTRALIA : Behn River.

EGENUS, Lea, *l. c.*, p. 566. (*Fig.* 142.)

N. S. WALES : Forest Reefs, Como, Sydney.

PLANICEPS, Lea, *l. c.*, p. 567. (*Figs.* 71, 143.)

N. S. WALES : Whitton.

NIDICOLA, Lea, *l. c.*, p. 570. (*Figs.* 59, 72.)

W. AUSTRALIA : Pelsart Island, Houtman's Abrolhos.

ORCICORNIS, Lea, *l. c.*, p. 571. (*Fig.* 73.)

W. AUSTRALIA : Mount Barker.

LAIUS ALLENI, n. sp. (*Figs.* 60, 115.)

♂. Dark bluish-green; under surface blackish; base of tarsi, base and apex of tibiae obscurely diluted with red; antennae blackish, two basal joints flavous. Densely clothed with very short pubescence, greyish on prothorax and elytra, silvery on head and legs.

Head smooth, densely and very minutely punctate. Eyes small and projecting. Antennae moderately long; 1st and 2nd joints highly polished and almost as long as the rest combined; 1st almost twice as long as the 2nd, distorted towards, and with a small tuft of hair at, apex; 2nd with its greatest length transverse to the line of joints, one edge rounded, the other notched, the upper surface on the notched side with two shallow excavations, lower surface gently convex and clothed with very minute whitish pubescence; 4th–9th joints subglobular. *Prothorax* strongly transverse, sides and angles rounded, gently convex throughout, densely and finely punctate, without coarse lateral punctures. *Elytra* smooth, without traces of costae and scarcely visibly punctate. Front *femora* thick, beneath with a deep oblique groove; front tibiae still thicker, especially in middle, and also with a deep oblique groove beneath; tarsi simple.

Length, 4 mm.

♀ Differs in having the antennae simple, the 1st joint as long as 2nd–4th combined, the 2nd as long as 3rd–4th combined; front legs simple.

Hab. QUEENSLAND: Cairns (*Edmund Allen*).

The uniformly convex and dark prothorax and elytra, absence of long hairs, dilated and grooved front femora and tibiae, simple tarsi and non-thickened elytral suture are strongly at variance with the other species of the genus. In general appearance it is not unlike *Necrobia rufipes*, except that the legs are dark.

I have great pleasure in dedicating this species to Mr. Allen, a gentleman from whom I have received many choice tropical insects.

LAIUS ARMICOLLIS, n. sp. (*Figs.* 4, 50.)

♂. Flavous; head between eyes of a vivid metallic green, a subtriangular basal portion blackish, elsewhere flavous in spots and patches; antennae blackish, the basal and three apical joints partly red; prothorax with a fairly large basal patch of vivid green, apical projection infuscate; elytra of a vivid green but with a fairly wide and somewhat zig-zag median fascia, which is widest at the margins and narrowest at the suture; scutellum, meso- and metasternum, apex

and sides of abdomen and the legs of a more or less obscure green ; tarsi obscure. Clothed with long, straggling, brownish hairs and in addition with short whitish pubescence, sparse on upper surface (denser at sides) but fairly dense on legs.

Head smooth in front, basal half deeply sculptured, in its middle a subtriangular space enclosing three shallow impressions, at each side a semicircular deep and large impression. Antennae short ; 1st joint as long as the four following combined, gradually inflated to its apex, 2nd–7th joints serrate internally and equal *inter se*, 8th–10th thinner and distinctly curved around, but the 8th and 9th in shape much as the preceding joints. *Prothorax* moderately transverse, sides strongly rounded, base feebly emarginate, apex rounded and with a strong projection over the head, the projection notched at tip and longitudinally concave; with two shallow transverse impressions of which the basal is the deeper ; scarcely visibly punctate, even at the sides. *Elytra* slightly dilated towards apex, surface (especially about the middle) slightly wrinkled ; with a few small scattered punctures. Front *tarsi* with the 2nd joint large, curved at apex and tipped with black; claw joint large, the claws unusually thick at base.

Length, $6\frac{1}{3}$ mm.

Hab. Victoria : Loutit Bay (type in National Museum) ; N. S. Wales : Darling River (Macleay Museum).

The strong projection on the prothorax (which is about one-fourth of the length of that segment) is unique in at least the Australian species of *Malacodermidae* hitherto described. In the type the green portions of the elytra change to purple as they approach the median fascia ; in the other specimen only the extreme base of the elytra is green, the dark portions elsewhere being blue, changing to deep purple as they approach the median fascia ; this specimen also has the antennal joints each partly dark, and the prothoracic projection not much darker than the disc. There are also two specimens in the Australian Museum, marked as having been taken in Hely's expedition.

Laius sculptus, n. sp. (*Figs.* 61, 144.)

♂. Head, base and apex of elytra (a rather wide median fascia flavous) of a vivid metallic coppery-green ; scutellum, under-surface (middle of basal segments of abdomen and prosternum reddish), and legs (front tibiae and tarsi more or less reddish), of a more obscure green ; prothorax flavous with a fairly large medio-basal patch of moderately bright green; antennae blackish, the two basal joints

partly red. Very sparsely clothed with long brownish hair and in addition with sparse whitish pubescence, dense only on legs.

Head smooth in front, on each side of middle a rather small but very distinct and rounded fovea, behind these a deep semicircular impression extending from side to side. Antennae short; 1st joint moderately stout, shorter than the three following combined, 2nd * simple but slightly longer than 3rd, 3rd-9th gradually decreasing in length and serrate internally. *Prothorax* moderately transverse angles obliquely cut off, apex trilobed, the median lobe small and somewhat rounded; with two transverse impressions, the basal very shallow, the apical deep, wide, very distinct and strongly interrupted at its middle (behind which there is a feeble depression on the disc); sparsely and minutely punctate, the sides moderately distinctly punctate. *Elytra* almost parallel-sided; with moderately dense, rather small, and evenly distributed punctures, except that towards the apex they become somewhat smaller. Second joint of front *tarsi* large, curved at apex and tipped with black.

Length 5½ mm.

Hab. Victoria: Macedon (*H. J. Carter*). The antennae simple in the male (the only sex known to me) is in itself a remarkable feature, but this is added to by the very unusual sculpture of the head and prothorax (the median lobe of the prothorax is not directed over the head as in *armicollis*). Previous to examining the sexual characters I thought the type was possibly the female of *armicollis* (in colour and general appearance the two species agree rather closely), but both the tarsi and abdomen are essentially masculine.

Laius orthodoxus, n. sp. (*Figs.* 62, 145, 146.)

♂. Almost of an orange-red colour; head (except in front and the sides in front of eyes), a large subquadrate prothoracic patch (continuous almost to base but terminated some distance from the apex), scutellum, under surface (except prosternum, middle of basal segment of abdomen and extreme apex of the other), palpi and portions of legs, black; antennae pallid except for a black spot on the first joint. Sparsely clothed with long straggling hairs, head and legs in addition with whitish pubescence.

Head much narrower, with the eyes less projecting than usual;

* This is really the 3rd joint, the true 2nd in the majority of species of the genus being more or less atrophied, but in the specimen before me it is distinctly visible on one of the antennae although not on the other.

shallowly impressed on each side in front, deeply impressed between eyes, this impression connected with the base by a rather wide and moderately deep impression; in places densely and minutely punctate. Antennae moderately long, 1st joint slightly shorter than 2nd, thin at base, then suddenly and strongly inflated and distorted,* 2nd sub-quadrate, one side feebly convex, the other deeply impressed towards the base, the impression increasing in depth and width to the summit, the others (except the 10th which is rather long and thin) moderately serrate. *Prothorax* moderately transverse, sides and angles rounded, base feebly tranversely depressed; disc sparsely and feebly, the sides densely and coarsely punctate. *Elytra* somewhat inflated towards apex, sides and suture thickened; densely and coarsely punctate except towards base and apex, where the punctures become very small and sparse. Front *legs* rather slender; 2nd joint of tarsi smaller than 1st, feebly curved at apex and with a minute black speck.

Length 6 mm.

♀. Differs in having the median transverse impression of the head less (but still very) distinct and not connected with the base, the punctures more distinct, the antennae simple with the 1st joint considerably longer than the 2nd and the 2nd than the 3rd; the tarsi are also simple.

Hab. QUEENSLAND: Brisbane (*Mrs. C. Lea*).

The unusually deep excavations of the head in the male appear to be quite natural; the head is also unusually narrow with the eyes less projecting than is usual. The pale marking at the apex of each elytron is much in the shape of a parrot's beak. The coarse punctures of the elytra suddenly terminate soon after appearing in the darker portions. In the male the front legs (except the coxae), most of the middle femora and all the trochanters are reddish; in the female the middle femora are entirely and the front ones almost entirely dark; in the female also the antennae (except the basal joints) are more or less infuscate.

In appearance this species is something like *plagiaticollis*, *conicicornis*, *villosus* and *rugiceps*, but the 2nd joint of the antennae in the male is very different. It appears also to

* In figure 62 the antennae are drawn as viewed from one direction, but from another the 1st joint appears obtusely knobbed and considerably wider than 2nd, the 2nd from another direction appears almost pyramidal and in fact of different shape from every direction it is looked at.

be close to the description of *quinqueplagiatus* * but is larger, antennae, abdomen and prothoracic spot differently coloured, etc. From the description of *rugulipennis* it differs in being larger (6 as against 4–5 mm.), with a spot on the 1st instead of the 2nd joint of antennae, and the middle femora (as well as the anterior legs) in the male partly pallid.

LAIUS TARSALIS, n. sp. (*Figs.* 63, 74, 116, 147.)

♂. Flavous; basal half of head, scutellum, meso-metasternum, apex of abdomen, four hinder coxae, tip of middle and apical half of hind femora, four hinder tibiae (except at extreme apex) and tarsi, and apical joint of palpi black; seven terminal joints of antennae, front tarsi and apex of tibiae more or less infuscate; elytra with four rather large purplish-blue spots; one on each at base forming the fourth of a circle and which does not quite touch the suture, and extends on the side for about one-fourth its length, the other subapical, subreniform in shape and touching the side but not the suture. Elytra and legs rather densely clothed with short whitish pubescence, intermingled with somewhat longer and darker hairs; elsewhere rather more sparsely clothed.

Head smooth and impunctate or almost so; a shining ridge extending (except for an interruption about one-third of its length) from eye to eye. Antennae very short, two basal joints almost as long as the others combined, 1st and 2nd joints strongly distorted and inflated,† 1st longer than 2nd, ridged above, the ridge at its highest suddenly curved round and descending almost at right angles to the joint, 2nd very large, convex and very finely pubescent below, above with three large and several smaller impressions, the surface between appearing as more or less distinct tubercular elevations; 3rd–9th globular, 10th moderately long but no thinner than 9th. *Prothorax* moderately transverse, apex considerably wider than base, front angles rounded, hind ones obsolete, feebly transversely impressed towards base; with small scattered punctures, no larger or denser at sides than elsewhere. *Scutellum* rounded posteriorly and finely punctate. *Elytra* parallel-sided to near apex, sides and suture thickened, each with feeble traces of two elevated lines; with very dense and moderately small punctures, no sparser or smaller on

* There are several other species before me which approach fairly closely to the description of that species.

† These two joints appear of different shapes according to the directions they are viewed from.

dark portions than elsewhere. Front *tarsi* with the 2nd joint larger than the 1st, hooked at apex and tipped with black.

Length 8 mm.

Hab. QUEENSLAND: Somerset (*C. French*).

In appearance somewhat resembling *major* and *verticalis* (Macleay *nec* Fairmaire); from the former it differs in the much shorter antennae, the two basal joints of which are very differently shaped; the elytra markings are also somewhat different. For its distinguishing features from *verticalis* see notes under that species. Although there are some moderately long hairs scattered about, these are much shorter than the straggling hairs so common in the species of *Laius*.

LAIUS FLAVOPICTUS, n. sp. (*Figs.* 148, 149.)

♂. Flavous; basal half of head (the dark portion M-shaped in front), prothorax (except extreme margins of both surfaces) scutellum, under-surface (base of middle segment of abdomen and tips of the others pallid), hind femora, and tip of basal joint of front tarsi black; hind edge of front femora, a transverse streak in front of head and a spot on basal joint of antennae infuscate; each elytron with an elongated patch of black, having a more or less distinct greenish, bluish, or purplish gloss. Very sparsely clothed with long straggling hairs, and in addition (more noticeably on the head and legs than elsewhere) with short, whitish pubescence.

Head polished and impunctate or almost so, with several very indistinct impressions. Antennae stout, simple, moderately long; 1st joint obpyriform, about once and one-half the length of 2nd, 2nd longer than 3rd, 3rd–9th serrate. *Prothorax* strongly transverse, apex truncate; base rounded, feebly transversely impressed towards base; with minute scattered punctures becoming more distinct towards sides. *Elytra* slightly dilated posteriorly, suture but not sides thickened; moderately densely and not very finely punctate, the interspaces with very minute punctures. Front *tarsi* with the 2nd joint large, curved at apex and tipped with black; claw-joint and claws unusually large.

Length 3 mm.

♀. Has the antennae shorter and thinner (but otherwise much the same), with the elytra wider posteriorly and the tarsi simple.

Hab. S. AUSTRALIA (Macleay Museum).

The very unusual markings render this species peculiarly distinct, as in *sculptus* the male antennae are quite

simple. In the male the dark portion of each elytron covers more than half the surface, but nowhere touches the margins, although it almost does so at the shoulder and again beyond the middle. In the female it occupies much less surface and is shaped much like a nut-wrench. In all the specimens (5) before me the apex of the elytra is stained with brown.

LAIUS CAVICORNIS, n. sp. (*Figs.* 64, 75, 76, 150.)

♂. Black ; muzzle, prothorax, a median zig-zig fascia and apex of elytra, middle (longitudinally) of abdomen, and tips of some of its segments, base of front femora and two basal joints of antennae, more or less flavous ; basal two-thirds of head and greater portion of elytra blue or purple.

Head obliquely flattened, scarcely visibly punctate. Antennae moderately long ; 1st joint stout, 2nd distorted, convex below and concave above, 10th almost twice as long as 9th. *Prothorax* rather strongly transverse, apex wider than base ; sides with scarcely visible punctures. *Elytra* densely and moderately coarsely punctate, punctures smaller and sparser near base (where also the colour is usually greenish) than elsewhere, on dark subapical markings dense and regular. Front *femora* feebly compressed but not grooved.

Length 5 mm.

♀. Differs in being slightly larger with antennae simple, and head and legs entirely dark.

Hab. N. S. WALES ; QUEENSLAND : Inglewood (Macleay Museum).

In size, colour, and general appearance strongly resembling *cyanocephalus* and *bellulus*, but the muzzle of the male flavous, the second joint of its antennae of very different shape and the dark subapical markings of elytra regularly punctured throughout ; *quinquenotatus* is a similar size and has somewhat similar elytral punctures, but is otherwise very different. In the table it should be placed next to *tarsalis* and *major*, from both of which it is readily distinguished by its much smaller size and different antennae and elytral markings. The second joint of the male antennae is about once and one half as wide as long, and is but little more than a hollow shell ; at its inner edge it is rounded and curved upwards, the upper portion being in three lobes, of these the median one is scarcely defined, the hind one is acute and projects slightly backwards, and the front one is subconical but obtuse.

Genus Hypattalus, Blackb., T. R. S., S.A., 1894, p. 208.

The Rev. T. Blackburn proposed this genus for several species differing in the tarsi from the European species of *Attalus*. I do not know that genus, and do not feel called upon to question the correctness of his proposal, but it will be noticed that there are profound differences in the legs of several species referred by me to the genus, and yet I believe the species here treated are all congeneric, although it is probable that some entomologists would regard them as belonging to several genera.*

The modifications of the legs are indeed remarkable; in about one-third of the known species the front femora are strongly curved, with the trochanters unusually large and projecting; of these, one species (*dentipes*) has the front femora obtusely dentate, its female having the hind tibiae each terminated by a spur fully half the length of the tarsus; long as it is, however, this spur is sometimes not readily seen, as it is often closely pressed against the tarsus. But there is at least another species (*calcaratus*) having the hind tibiae spurred in the female but belonging to the group with normal femora in the male.† One of the most singular modifications, however, occurs in the hind tibiae of the males of several species (*elegans* and *distortipes*, at least), these are curiously twisted in the middle, the distorted portion being usually of a bright red colour.

The antennae are usually serrate internally in both sexes, with the 11th joint distinctly longer than the 10th; the 2nd joint, although shorter than the 3rd, is never very small; in the male the serrations are usually more pronounced than in the female, but (except in *dispar*, where the male has pectinate antennae) the difference is not sufficiently pronounced to be alone distinctive of sex.

The penultimate segment of the abdomen of the male

* For instance, the following groups might be regarded as of generic value :—

1. Front femora of male curved with strongly projecting trochanters ; hind tibiae of female spurred.
2. Front legs as in the preceding group but hind tibiae of female not spurred.
3. Front legs simple. Hind tibiae of female spurred.
4. Legs and antennae simple.
5. Front legs simple. Hind tibiae of male distorted in middle.
6. Legs simple. Antennae of male pectinate.

† A female belonging to another species before me has spurred hind tibiae, but as I do not know its male, it has not been described.

often appears as if it had a long median lobe, and towards each side a smaller lobe; the supposed median lobe, however, is the sheath of the penis, which appears in several species to be permanently exposed, in other species the sheath is just as distinct, but is really internal, its exposed appearance being caused by its horny nature not allowing it to shrink, as does the rest of the abdomen, in consequence the outer skin is drawn very tightly over it, and it then appears as an elongated shining ridge. In the female the abdomen is usually obtusely notched at the tip.

If the specimens (and especially females) are set out when soft, the elytra often appear too short to cover the abdomen, but the species are not truly brachelytrous.

I have not considered it necessary to describe the clothing of each species. It consists of long and straggling hairs, more noticeable on the sides and legs than elsewhere; the elytra in addition have short whitish pubescence, which, however, is indistinct from some directions. Nor have I considered it necessary to describe the prothorax * other than as to its colour; in all the species it is strongly transverse, the disc widely and continuously convex, the base and sides (except in front, where the convexity is not at all interrupted) feebly margined, and the surface impunctate, or at most with a few very indistinct punctures.

Besides the species here recorded, there are five others before me (three of them being very distinct), but they are unfortunately all represented by females only, so I have considered it best to leave them undescribed.

I am not acquainted with *punctulatus*, but it is evidently a dingy species allied to *australis* and *elegans*. As no characters which can be recognised as sexual were given in the description, it is impossible to determine the sex of the types, and consequently it would be dangerous to identify it on any other than South Australian specimens. I am confident, however, that I have not seen it.

The others may be tabulated as follows:—

A. Front femora of male strongly curved,
the trochanters large and projecting.
a. Elytra partly pale.
b. Prothorax with distinct markings . *pulcherrimus*, Lea.

---

* This does not apply to *sordidus* and *montanus* which were described after the preparation of these notes.

bb. Prothorax immaculate or with indistinct markings . . . . . *mirabilis*, Lea.
aa. Elytra entirely dark.
c. Hind tibiae of female spurred . . *dentipes*, n. sp.
cc. Hind tibiae of female not spurred.
d. Elytra of female mucronate at apex *mucronatus*, n. sp.
dd. Elytra not mucronate.
e. Four hinder tibiae of male angular and red at base . . . *flaviventris*, n. sp.
ee. Four hinder tibiae of male simple and nowhere red . . *australis*, Fairm.
AA. Front legs of male simple.*
B. Prothorax entirely dark.
f. Elytra entirely dark . . . . . *carteri*, n. sp.
ff. Elytra partly pale.
g. Pale markings median and apical *exilis*, n. sp.
gg. Pale markings humeral . . . *montanus*, n. sp.
BB. Prothorax partly dark.
h. Dark markings lateral . . . . . *sordidus*, n. sp.
hh. Dark markings median.
i. Elytra coarsely punctate . . . *distortipes*, n. sp.
ii. Elytra almost impunctate . . . *collaris*, Lea.
BBB. Prothorax entirely pale.†
C. Elytra partly pale.
j. Pale markings not entirely apical *alphabeticus*, Lea.
jj. Pale markings apical only.
k. Elytra strongly punctate . . *viridis*, Lea.
kk. Elytra feebly punctate.
l. Antennae of male pectinate . *dispar*, Lea.
ll. Antennae of male serrate . *violaceus*, Lea.
CC. Elytra entirely dark.
D. Hind tibiae of male distorted and red in middle . . . . . *elegans*, Blackb.
DD. Hind tibiae of male simple.
E. Antennae of male almost as long as body . . . . . *longicornis*, Lea.
EE. Antennae shorter.
F. Hind tibiae of female spurred *calcaratus*, n. sp.
FF. Hind tibiae of female not spurred . . . . . *abdominalis*, Er.

* Although I am not acquainted with the males of *collaris*, *viridis*, and *alphabeticus* they are placed here for reasons stated below.
† There is a variety (noted below) of *abdominalis* in which the prothorax is maculate.

HYPATTALUS ABDOMINALIS, Er. (*Attalus*, Er.), Wiegm., Arch., 1842, I, p. 147; Blackb., T. R. S., S.A., 1894, p. 208.

brevicornis, Lea, P. L. S., N.S.W., 1898, p. 573.
var. *occidentalis*, Lea, *l. c.*, p 573.

I have numerous specimens from various parts of Tasmania which agree with the description of this species, the type specimen of which had but one joint of its antennae left.

The antennae have the 4th-10th joints serrate; in the female they are about as long as the head and prothorax combined, in the male they are distinctly longer, and the serrations are more pronounced.

Dr. Erichson describes the abdomen as red, with the apex black; in the specimens I have examined the two basal segments are also black, or at least infuscate; whilst in some of the females all the segments are black.

The elytra are usually deep blue but are occasionally purplish or greenish. In four specimens before me there is a blotch on the prothorax varying from infuscate to deep black.

The small size and almost impunctate elytra will at once distinguish this species from the close allies of *australis*. Its front femora and hind tibiae are simple in both sexes.

On again examining the types of *brevicornis* I find they represent but the variety of *abdominalis* having the abdomen entirely black; of the seven specimens originally before me, I now have five, of these three have the abdomen black, whilst two have the median segments reddish; *brevicornis* therefore must be regarded as a synonym of *abdominalis*, or the ones with the abdomen black as a common variety of the female.

Occidentalis, described as a possible variety of *brevicornis*, is, I am now convinced, a variety only, and must therefore be referred to *abdominalis*.

Hab. AUSTRALIA and TASMANIA.

HYPATTALUS AUSTRALIS, Fairm. (*Attalus*), Pet. Nouv. Ent., 1877, II, p. 174; Journ. Mus. Godeffr., 1879, XIV, p. 104; Blackb., T. R. S., S.A., 1894, p. 208. (*Fig.* 117.)

The sex of his specimen was not mentioned by Fairmaire, but it was evidently female. His description would

apply fairly well to the females of several species before me; one of these bears a label in the Rev. T. Blackburn s writing "*Attalus australis*, Fairm."; and as it is the only common species I have from about Sydney (the type of *australis* being given as from Sydney) and agrees fully as well as any of the others with the description, I accept the identification as correct.*

In the type of *australis* the lower surface of only the first of the antennal joints was pallid, in the specimens before me the number of joints that are pallid beneath vary in number from one to four, whilst occasionally the second joint is entirely pallid. Fairmaire describes the scutellum as "*triangulari.*" In specimens having the elytra somewhat freed from the prothorax the scutellum appears as widely triangular with the apex widely rounded; with the prothorax overlapping the elytra, as is usually the case, the scutellum could scarcely be described as triangular. In the female the hind tibiae are moderately curved, and at the tip compressed, fairly wide and distinctly emarginate or notched, but not spurred.

The male (I have a pair taken *in cop.*) differs from the female in being slightly smaller, with longer antennae (which have the serrations of the joints more pronounced), the front femora stout, moderately curved and with strongly projecting trochanters; the front tibiae are rather stouter and the hind ones shorter and less curved than in the female.

Hab. N. S. Wales : Sydney, Como, National Park.

Hypattalus elegans, Blackb., T. R. S., S.A., 1894, p. 209.

Of this species Blackburn says "*colore praecedenti* (*punctulatus*) *simillimus*" (except as to the elytra and legs) the colour of the abdomen not being mentioned; of *punctulatus* it is described as "parte mediana rufis," apparently as in the normal form of *abdominalis*. The type specimen was possibly examined without removal from the card, as in four females before me the two basal and the apical segments are blackish whilst the others are blackish or infuscate along the middle, but this could not be seen from the side; in the two males I have seen the abdomen is entirely red. The male is smaller than the female and the

* Mr. Blackburn himself (*l. c.*) appears to have had some slight doubts as to the correctness of his identification.

antennae longer with the serrations more pronounced. Its front femora are normal but its hind tibiae are remarkable; just before the middle they are suddenly compressed, the compressed portion being red *; seen from above the compressed part appears slightly wider than the rest of the tibiae whilst from the side it appears to be much narrower. This appearance at first appears to be accidental, but in another species (*distortipes*) before me it is even more pronounced.

Hab. N. S. Wales: Blue Mountains, Forest Reefs, Hillgrove; Victoria: Studley Park.

var. TASMANIENSIS, *n. var.*

I have eight specimens of what I regard as a variety of this species. They differ from the above noted ones in being darker (most of them have the elytra purplish-blue), and with the punctures much coarser. In two males the abdomen is red except at the apex, the hind tibiae are as described above even to the distorted portion being red in one and almost as dark as the rest of the tibiae in the other. The abdomen of the females varies from entirely dark to dark only at the apex. In one of them the apical half of the terminal joint of the antennae is distinctly reddish.

Hab. Tasmania: River Isis, Mount Wellington (*H. H. D. Griffith*), Launceston (*Aug. Simson*), Stonor (*A. M. Lea*).

Hypattalus collaris, Lea, P. L. S., N.S.W., 1898, p. 575.

The types of this species are females. I have tabulated it, however, with the species having the front femora of the male simple as it is evidently allied to *distortipes*, and probably has the hind femora distorted in the male.

Hab. N. S. Wales: Galston, National Park.

Hypattalus viridis, Lea, *l. c.*, p. 576.

Although I do not know the male of this species (the type is a female) I have tabulated it with those having the front femora of the male simple, as it is evidently allied to *calcaratus*, notwithstanding its simple hind tibiae.

Hab. N. S. Wales: Tamworth.

* In one specimen, in the other it is almost as dark as the rest of the tibiae.

HYPATTALUS ALPHABETICUS, Lea, *l. c.*, p. 579. (*Fig.* 151.)

The type of this species is a female; in the table it is placed with those having the front femora simple in the male, as although differently coloured to any species of either section it is evidently not structurally close to any of the species having the front femora distorted.*

Hab. N. S. WALES: Tamworth.

PUNCTULATUS, Blackb., T. R. S., S.A., 1894, p. 209.

S. AUSTRALIA: Eyre's Peninsula.

LONGICORNIS, Lea, P. L. S., N.S.W., 1898, p. 574.

N. S. WALES: Queanbeyan.

DISPAR, Lea, *l. c.*, p. 575. (*Fig.* 77.)

N. S. WALES: Galston.

VIOLACEUS, Lea, *l. c.*, p. 576.

N. S. WALES: Tamworth.

PULCHERRIMUS, Lea, *l. c.*, p. 577. (*Figs.* 118, 152.)

N. S. WALES: Armidale.

MIRABILIS, Lea, *l. c.*, p. 578.

N. S. WALES: Tamworth, Clarence River.

HYPATTALUS MUCRONATUS, n. sp. (*Figs.* 106, 119.)

♂ Black; elytra metallic-blue (or green); prothorax, front tibiae (wholly or in part) and parts of three basal joints of antennae flavous.

Head impunctate, with several very shallow impressions. Antennae rather long and thin, obtusely serrate internally. *Elytra*, except near base and apex, densely and moderately coarsely punctate; sides and suture (except on basal fourth) thickened, with the sides upturned along a lateral channel. Front *legs* with strongly projecting and obtusely pointed trochanters; femora strongly curved; tibiae curved at base and somewhat angular; hind tibiae notched at apex.

Length $3\frac{1}{2}$ (♀ 4) mm.

♀. Differs in having simple front legs; the elytra rather more densely and irregularly punctate, the sides and the suture less

* Since this was written I have seen what is evidently the male, it differs in being larger (3 mm.) and in having the antennae pectinate, much as in the male of *dispar*. It is unique in Mr. R. Helms' collection, and was taken by him on the Macleay River.

thickened, the sides sub-parallel for the basal two-thirds, then suddenly and strongly narrowed, then widely rounded with the apex obtusely mucronate.

Hab. N. S. Wales: Jenolan (*J. C. Wiburd* and *A. M. Lea*); Sydney, Blue Mountains, National Park (*H. J. Carter*).

The legs of both sexes are much as in *australis*, and the males are much alike, except that in *mucronatus* the antennae are distinctly longer and that the elytral punctures are different and the lateral margins thicker. The elytra of the female, however, render the species remarkably distinct, not only from *australis*, but from any other of its congeners; the species, in fact, is one of the few in which the female is much more distinct than the male; seen from below each elytra appears to have a rather wide lateral flange, which at about the apical third is abruptly terminated.

Hypattalus flaviventris, n. sp.

♂. Black; elytra metallic bluish-green; prothorax, abdomen, front legs (tarsi and apical half of tibiae infuscate) and parts of three basal joints of antennae flavous; base of four hind tibiae red.

Head and antennae much as in the preceding species except that the antennae are somewhat shorter. *Elytra* with small and not very dense punctures in middle and almost absent elsewhere; a feeble channel towards sides, sides and suture slightly thickened. Front *legs* with trochanters large, wide, and acutely angular at apex; femora strongly curved; tibiae angular at base; hind tibiae angular at base and obtusely notched at apex.

Length 3¼ mm.

♀. Differs in having the front legs and tip of abdomen dark and the legs simple except that the hind tibiae are acutely notched at apex.

Hab. N. S. Wales: Jenolan (*J. C. Wiburd*).

In appearance close to the preceding species and *australis*, but the colour and shape of the four hind tibiae in the male alone render it very distinct from all the allies of the latter.

Hypattalus dentipes, n. sp. (*Figs.* 120, 121.)

♂. Black, head with a slight bluish gloss; elytra deep metallic-blue; prothorax, anterior legs (in parts infuscate) and parts of three basal joints of antennae flavous.

Head and antennae much as in *mucronatus*. *Elytra* densely and moderately coarsely punctate, punctures smaller at base and apex than elsewhere; sides and suture moderately (towards apex rather strongly) thickened and sides feebly channelled. Front *legs* with strongly produced and obtusely pointed trochanters; femora strongly curved and with a large but obtuse subbasal tooth.

Length 3 (♀ $3\frac{3}{4}$) mm.

♀. Differs in having the front legs simple and (except the coxae) almost entirely dark, and the hind tibiae each with a long fixed spur rather more than half the length of the tarsus.

Hab. N. S. Wales: National Park, Sydney (*H. J. Carter* and *A. M. Lea*), Jenolan (*J. C. Wiburd*), Nowra (Macleay Museum).

Allied to *australis* and the two preceding species, but at once distinguished by the long spur to the hind tibiae of the female and the dentate front femora of the male. Parts of the coxae and trochanters are obscurely diluted with red. Seen from the sides the margins of the elytra of the female appear rather strongly arched at the middle, from above from certain directions they are reminiscent of those of the female of *mucronatus*, but this is more apparent than real, whilst the apex is quite simply rounded.

One male (probably immature) has part of the suture and sides of elytra and more of the legs and antennae obscurely pallid.

Hypattalus calcaratus, n. sp.

♂. Black; elytra deep bluish-green; prothorax reddish-flavous; three basal joints of antennae and parts of legs obscurely diluted with red.

Head and antennae much as in *mucronatus* except that the eyes are larger and antennae somewhat thicker. *Elytra* densely and moderately coarsely punctate, the punctures not much finer at base and apex than elsewhere; sides and suture very feebly thickened and the sides very slightly channelled. *Legs* simple.

Length $1\frac{3}{4}$–2 mm.

♀. Differs in having the hind tibiae each terminated by a long thin curved fixed spur, distinctly more than half the length of the tarsus.

Hab. N. S. Wales: Sydney (Macleay Museum), National Park (*A. M. Lea*).

A very small species, in size and appearance somewhat

like *abdominalis*, but at once distinguished by the spurs to the hind tibiae of the female; the elytral punctures are also very distinct, instead of being scarcely visible as in that species. The preceding species (which also is spurred in the female) is very much larger and the front legs of its male are not simple.

HYPATTALUS DISTORTIPES, n. sp. (*Fig.* 122.)

♂. Black, head with a bluish gloss; elytra deep metallic bluish-green; sides of prothorax rather widely flavous; abdomen (the greater portion of middle infuscate), parts of three basal joints of antennae, the trochanters and labial palpi testaceous.

Head with two moderately large subapical foveae. Antennae moderately long and rather strongly serrate internally. *Elytra* densely and rather coarsely punctate, the punctures larger in the middle than elsewhere; suture and sides scarcely thickened, and the latter not channelled. Front *legs* simple; hind tibiae curiously distorted in middle, the distorted portion of a bright red colour.

Length $3\frac{1}{2}$ mm.

Hab. TASMANIA: Mount Wellington (*H. H. D. Griffith*), Hobart (*A. M. Lea*).

The hind tibiae are distorted much as in the male of *elegans*, but, besides the bicolorous prothorax, the elytra are more coarsely punctate, even than in the Tasmanian variety of that species. The colours of the prothorax are somewhat as in *collaris*, but the size, punctures and antennae of the two species are very different.

HYPATTALUS CARTERI, n. sp.

♂ ♀. Black; elytra with a deep metallic-green gloss.

Head with several feeble impressions. Antennae short (not passing middle coxae) and rather strongly serrate internally. *Elytra* smooth and impunctate or almost so, suture and sides not thickened, and the latter not channelled. *Legs* simple.

Length 2–$2\frac{1}{2}$ mm.

Hab. TASMANIA: Hobart (*H. J. Carter*), Mount Wellington, Huon River (*A. M. Lea*).

The only species yet described having the upper surface and legs entirely dark. Parts of the abdomen and prosternum are seen to be reddish when exposed through shrinkage, but specimens as ordinarily preserved appear

to be entirely dark. Owing apparently to irregular contraction due to their thinness the elytra occasionally appear to be slightly rugulose, but no distinct punctures are traceable. The sexes do not differ in the antennae and legs.

HYPATTALUS EXILIS, n. sp. (*Fig.* 153.)

♂ ♀. Black with a slight bronzy gloss; tip of elytra and a spot on each side, coxae and trochanters pale flavous (almost white); knees and parts of basal joints of antennae obscure flavous.

Head with two distinct subapical fovae. *Prothorax* rather less transverse than usual, and with a few subapical punctures. *Elytra* thin, moderately densely and rather coarsely punctate on the basal half (except at extreme base) and almost impunctate elsewhere. *Legs* simple but thinner than usual.

Length $2\frac{1}{4}$–$2\frac{3}{4}$ mm.

Hab. TASMANIA: George Town (*Aug. Simson*), Mole Creek, Ulverstone, Hobart (*A. M. Lea*). On blossoms of *Bursaria spinosa*.

A very narrow species (narrower even than *longicornis*), the colour alone rendering it very distinct from all previously described species. The sexes (apart from a slight difference at the apex of abdomen) are scarcely distinguishable. The spot on each side of the elytra is widest at the margin and subtriangularly narrowed towards the suture and appears as a remnant of a median fascia; in one specimen each spot is obscurely connected with the apex along both suture and side so that the apical half appears pallid except for a large dark spot; in several others the suture beyond the middle is narrowly flavous. The pubescence is much sparser than in any other species here recorded, the upper surface at first sight being apparently glabrous, the antennae, though long, appear comparatively short, owing to the length of the elytra; they are but very feebly serrate internally, the subapical foveae of the head occasionally become united, when they appear as a moderately large shallow punctate impression. The elytral punctures are reminiscent of those of many species of *Cleridae*.

HYPATTALUS SORDIDUS, n. sp.

♂. Black; elytra dark submetallic blue or green, with or without patches glossed with purple; prothorax reddish flavous,

widely and deeply stained with black on the sides, and occasionally narrowly stained at base and apex; parts of basal joints of antennae and the knees more or less obscurely diluted with red. Sides rather densely clothed with long dark pubescence; elsewhere with short sparse pubescence.

Head densely and coarsely punctate, with a shallow subfoveate impression on each side of apex. Antennae short, 4th–10th joints strongly serrated. *Prothorax* twice as wide as long, apex truncate, base obscurely bilobed, sides strongly rounded; densely and moderately coarsely punctate, but punctures coarse on sides. *Elytra* wide, slightly dilated posteriorly, each separately rounded at apex, densely and rather coarsely punctate, the punctures larger than disc of prothorax but smaller than on head. Penultimate segment of *abdomen* slightly incurved at apex; apical segment deeply and narrowly excised. *Legs* comparatively short; femora simple, hind tibiæ very feebly curved.

Length 3½–5 mm.

♀. Differs in being larger and wider, antennae shorter and less strongly serrate, abdomen frequently partially uncovered and legs rather shorter.

Hab. N. S. Wales: Armidale (*A. M. Lea*); Victoria: Fernshaw (National Museum); S. Australia (Macleay Museum); Tasmania: Hobart (*H. H. D. Griffith* and *A. M. Lea*), Launceston (*Aug. Simson*, No. 2625).

A large broad species of wide distribution, but apparently never common. In the female the abdomen is frequently inflated so that then it does not appear to belong to *Hypattalus*, but to approach the genera with short elytra (*Carphurus*, etc.), but the males (except as to the colour and punctures of the prothorax, look quite ordinary specimens of *Hypattalus*.

Hypattalus montanus, n. sp.

♂. Black; shoulders, parts of basal joints of antennae, trochanters and extreme base and apex of tibiae more or less red. Clothed with sparse greyish pubescence, becoming longer on the side but still sparse.

Head rather large and strongly convex, with irregular scattered punctures. Eyes small, coarsely faceted and very prominent. Antennae long (extending to about one-fourth from apex of elytra) the five terminal joints fully half of their total length, the 3rd–7th rather distinctly serrate. *Prothorax* not twice as

wide as long, apex truncate, base obscurely bilobed, sides somewhat angular, with a rather feeble median line; with rather small scattered punctures. *Elytra* long, sides sub-parallel; densely, rather coarsely and almost regularly punctate throughout, sides and apical half of suture thickened. *Legs* long; femora simple; hind tibiae moderately curved.

Length 5 mm.

♀. Differs in being larger and considerably wider; head wider and less convex; eyes less prominent; antennae shorter, with the five terminal joints less than half their total length; prothorax more transverse, the sides more rounded; elytra with smaller punctures and the legs shorter.

Hab. TASMANIA: Mount Wellington (under bark of *Eucalyptus coccifera* close to and on summit, *J. J. Walker* and *A. M. Lea*).

In general appearance this insect does not look much like a *Hypattalus*, but as its elytra completely cover the abdomen, the body has extrusible vesicles and the antennae are 11-jointed, it could only be referred to that genus or to a new one, and at present the former course seems to be preferable. One of the females has the marginal and sutural thickenings of the elytra pallid as well as the shoulders. Owing partly to irregular contraction and partly to clothing, I am not able to define the sculpture of the apical segments of abdomen of either of the males before me, but they are evidently not distinctly notched.

BALANOPHORUS.
CARPHURUS.
NEOCARPHURUS.
HELCOGASTER.

In all four of these brachelytrous genera I am not able to find characters in the visible parts of the abdomen to denote sex. There may be such occasionally, but in all the specimens I have examined I have failed to find any; in some cases possibly owing to irregular contraction, but really I think owing to their absence. In many specimens the sheath of the penis, or part of the ovipositor is exposed, but these are so much alike that they are of doubtful use in diagnosing the sex. This being the case other parts have to be relied upon to denote sex. In *Helcogaster* and *Neocarphurus* the

head is nearly always largely excavated in the male, and gently convex in the female; but I am unable to define any external feature by which the sex of certain species of *Carphurus* and of *Balanophorus* can to a certainty be recognized. In *Carphurus* it is true the head is sometimes excavated, and the elytra armed, these being certain indications that the specimens are males; in *Balanophorus* the males always have flabellate antennæ. But now comes what must be regarded as an "awkward" feature. The males of all four genera have the first joint of the anterior tarsi large (often of a peculiar shape), and supplied with numerous close-set teeth,* evidently to act as a comb for the antennæ; but the females of *Balanophorus* also have this joint so formed. Another "awkward" feature is that the males of certain species of *Carphurus* have the antennæ strongly serrate or subpectinate, much as they are in the females of *Balanophorus*; so that although the sex of a female *Carphurus* or of a male *Balanophorus* can always be ascertained, it is often quite impossible to be certain as to whether an unique specimen of a species having the basal joint large and curiously formed, with the antennæ strongly serrate, is the female of a *Balanophorus* or the male of a *Carphurus*; and both genera are numerously represented in Australia, although the latter consists of a far greater number of species than the former.

In the species of all four genera the lower surface of the head is bifoveate, and the mandibles bifid at the apex. They all look very fine when well set out, but there are few beetles which look worse when badly set or pinned; and owing to the irregular contraction which always takes place, once dried they can never afterwards be properly set out.

I have described the colours as I found them, but it is to be noted that the reddish ones are frequently subject to considerable alteration with age or improper treatment, and I do not think that any *shades* of the pale colours from pale flavous to deep red are to be depended upon as of specific value; the dark blues, purples and greens, as in so many similarly coloured insects, are also variable, but appear to be little affected by age.

* A compound power is necessary to see these teeth clearly; under an ordinary hand-lens each series appears as a black rim to the inner margin of the joint.

The lengths have been given to apex of elytra as well as the total lengths, as I believe the former are more important, and certainly are not so liable to alteration through the contraction which takes place in pinned or badly set specimens.

Genus BALANOPHORUS,* Macl., Trans. Ent. Soc., N. S. Wales, II, p. 267.

The males of this genus can be readily recognised by their having flabellate antennae. There are two sections of the genus; the *mastersi*, having the eyes comparatively small in both sexes; and the *macleayi*, in which the eyes of the male are very large, occupying more than half the total width. As above noted I am unable to define any character by which a female of the genus can, to a certainty, be distinguished from a male *Carphurus*.

I do not know *biplagiatus* and *megalops*, both of which are commented on below; and I have excluded *brevipennis* from the table owing to doubts as to which section of the genus it belongs to, even if it is not a *Carphurus*. It is however an easily recognised species.

The others † may be tabulated as follows:—

A. Eyes occupying fully half the width of head in male.
  a. Head partly dark . . . . . *scapulatus*, Fairm.‡
  aa. Head entirely pale . . . . . *macleayi*, Lea.
AA. Eyes occupying much less than half the width of head in male.
  B. Elytra bicolorous.
    b. Head partly dark . . . *mastersi*, Macl.
    bb. Head entirely pale . . . *pictus*, n. sp.
  BB. Elytra unicolorous.
    C. Elytra distinctly punctured . *janthinipennis*, Fairm.
    CC. Elytra indistinctly punctured *victoriensis*, n. sp.

---

* The name *Balanophorus* will have to be altered, as it was used in 1825 by Briganti for a genus of worms.

† The description of *ater* was drawn up after this table was prepared.

‡ To judge by the descriptions *biplagiatus* and *megalops* may be tabulated with *scapulatus* as follows:—

Less than half of elytra dark . . . . . *biplagiatus*, Fairm.
More than half of elytra dark.
  More than half of legs pale . . . . *scapulatus*, Fairm.
  Less than half of legs pale . . *megalops*, Lea.

BALANOPHORUS BREVIPENNIS, Germ. (*Carphurus*), Linn. Ent., III, 1848, 138; Fairm., Journ. Mus. Godeffr., 1879, p. 110.

I have not seen the male of this species, but Fairmaire, although the species was unknown to him, probably correctly referred it to *Balanophorus*, as Germar describes the antennae as "in mare *pectinatis, in femina serratis.*"

The basal joint of the anterior tarsus is of the remarkable shape that it always is in *Balanophorus*, but which is not confined to that genus.

Of three females before me two have the inter-ocular fascia as in the type, whilst a third has the basal two-thirds of the head entirely black, this specimen has also the upper surface of the two basal joints of the antennae black, and one of the others has a black spot on the basal joint; the latter specimen has the third abdominal segment with a black rounded spot on each side, in addition to the black median space.

Hab. S. AUSTRALIA; N. S. WALES: Leura, Forest Reefs; QUEENSLAND: Cairns; VICTORIA: Carlton.

BALANOPHORUS JANTHINIPENNIS, Fairm., Journ. Mus. Godeffr., 1879, p. 110.

The female of this species was unknown to Fairmaire; it differs from the male in being larger, the antennae strongly serrate and the basal joint of the front tarsi somewhat smaller, but still of considerable size; in appearance it resembles both sexes of *Carphurus bifoveatus*, but can be distinguished by its comparatively coarsely punctured elytra.

Hab. N. S. WALES: Sydney, National Park, Forest Reefs; TASMANIA: Beaconsfield.

BALANOPHORUS SCAPULATUS, Fairm. (*Carphurus*), Journ. Mus. Godeffr., 1879, p. 109.

Only the female of this species was known to Fairmaire, and he naturally referred it to *Carphurus*. I have now both sexes (three males and two females) before me. Of these one of each sex has an infuscate median patch on the head (apparently as in the type), whilst in the others the head (except the muzzle) is entirely black. In one of each sex the two apical segments of abdomen are

black (as in the type), but in the others the next one is also black.

The antennae of the male are clothed with long blackish hair and are exactly as I have described them in *megalops*; the two species in fact are closely allied.

Hab. QUEENSLAND: Rockhampton; NEW SOUTH WALES: Tweed River, Bulli, National Park, Galston.

BALANOPHORUS BIPLAGIATUS,* Fairm., Journ. Mus. Godeffr., 1879, 110.

Apparently allied to *scapulatus*, but with the elytra pallid, except for a transverse subapical infuscate spot on each.

Hab. QUEENSLAND: Peak Downs.

BALANOPHORUS MEGALOPS, Lea, P. L. S., N.S.W., 1901, p. 483.

The type of this species is in the Macleay Museum; it differs from *scapulatus* in having the greater portion of the legs black; the elytra with a bluish gloss, only one-fifth of the base pallid (the marking cut across) and conjointly, instead of separately, rounded at apex. The scutellum also is pale.

By an unfortunate error its prothorax was described as "almost twice as wide as long," this should have been "almost twice as long as wide." Its antennae were also once referred to as "funicle."

Hab. N. S. WALES: Otford.

MASTERSI, Macl., Trans. Ent. Soc., N. S. Wales, ii, p. 267; Lea, P. L. S., N.S.W., 1895, p. 261.

Hab. QUEENSLAND; N. S. WALES; VICTORIA.

MACLEAYI, Lea, P. L. S., N.S.W., 1895, p. 261; 1904, p. 91, Pl. IV, fig. 8.

Hab. N.W. AUSTRALIA.

BALANOPHORUS PICTUS, n. sp.

♂. Flavous; apical third (or fourth) of elytra of a bright metallic green; metasternum, tips of mandibles, seven (or eight) terminal

* In Masters' catalogue appearing both as a *Balanophorus* (3438) and as a *Carphurus* (3418).

joints of antennae, and four hind femora black or blackish. Middle of lower surface of two basal segments of abdomen infuscate. Clothed with long, straggling, griseous hairs.

Head not very large, with several feeble impressions in front, and a feeble slightly curved ridge between eyes. Antennae not extending to apex of elytra; 3rd joint dentate, 4th–10th pectinate, 11th long and clubbed. *Prothorax* almost circular. *Elytra* with rather large but shallow, indistinct and rather sparse punctures. *Legs* moderately stout (for the genus); basal joint of front tarsi large and thick, rounded, and with a black comb almost the entire length of the inner margin.

Length to apex of elytra 4, of abdomen 5½ mm.

Hab. N.W. Australia (type in Macleay Museum), Derby (*W. W. Froggatt*).

The antennal rami of the male are shorter than in the other species known to me, and are without the long hairs so characteristic of most of the species. In colour to a certain extent it resembles *macleayi*, but the head is smaller, with much less prominent eyes, and in fact these are not much larger than in *mastersi*, in which they are least prominent of all. The front legs are (excluding the comb) either entirely pallid or with the femora partly infuscate; the same is the case with the middle tibiae and tarsi, whilst the hind tibiae are either pallid or black. On one specimen there is an infuscate spot on the upper surface of each of the median abdominal segments.

A specimen in the Macleay Museum, which I presume to be the female, has the apical two-thirds of the elytra purplish-brown, its legs (except the hind femora and coxae) are pallid, and antennae pallid at base, becoming darker from the fourth joint, the 3rd–10th joints are strongly serrate; the prothorax is longer than wide, the sides rounded and decreasing in width to base, the elytra are wider with the sides at the basal third, suddenly widened but thence parallel to apex; whilst the eyes are even larger.

Balanophorus victoriensis, n. sp.

♂. Black; elytra violet-blue; prothorax, muzzle, base of antennae and front coxae reddish-flavous. Clothed with long, straggling griseous hairs.

Head large; with rather large and prominent eyes; base in middle irregularly punctate, at sides strigose; with several feeble

impressions in front. Antennae extending almost to apex of elytra, 3rd joint dentate, 4th–10th pectinate, 11th long. *Prothorax* longer than wide, sides and apex rather strongly rounded. *Elytra* considerably wider than prothorax, smooth; with scattered indistinct punctures. *Legs* long and thin; basal joint of front tarsi with a black comb on the inner margin.

Length to apex of elytra $3\frac{1}{2}$, of abdomen 5 mm.

Hab. Victoria: Fernshaw (National Museum).

In size and general appearance very close to *janthinipennis*, but at once readily distinguished by the scarcely punctured elytra and black basal segments of abdomen; these, it is true, are reddish at the sides, but in the other species they are entirely red.

Balanophorus ater, n. sp.

♂. Black; sub-basal joints of antennae and knees obscurely diluted with red.

Head wide, feebly impressed on each side in front, with a few small scattered punctures. Eyes small but prominent. Antennae glabrous, passing apex of elytra; 3rd joint dentate, 4th–10th pectinate, 11th long. *Prothorax* moderately transverse. *Elytra* at base not much wider than prothorax; indistinctly punctate. *Legs* long and thin.

Length to apex of elytra $1\frac{1}{2}$, of abdomen 2 mm.

Hab. S. Australia (type in Macleay Museum).

Readily distinguished from all the other species of the genus by its minute size and black prothorax. In the type the front tarsi are missing.

Genus Carphurus, Er., Entomogr., p. 132; Lacord., Gen. Coleop., IV, p. 396.

This genus may be regarded as the central one of the group of genera having exsertile vesicles and short elytra; branching off in one direction to *Balanophorus*; in another to *Helcogaster*, and in still another to *Neocarphurus*. It is more numerously represented in species than *Helcogaster*, but few of them are at all abundant in specimens as are many of the latter genus.

The genus of a female *Carphurus* can always be ascertained; but, as noted above, it is not always possible to tell whether a specimen, apparently a male, belonging to

it, is not really a female *Balanophorus*. This uncertainty, however, only applies to those species having subpectinate antennae.

The head of the male is usually smooth, or with but shallow impressions; sometimes, however, it is just as largely excavated as in many males of *Helcogaster*. In both sexes it is usually transversely strigose at the base, but this position is quite commonly concealed by the overlapping prothorax. Great variation occurs in the antennae, in some species these organs being almost cylindrical, in others strongly dentate, whilst in a few they are even subpectinate; the terminal joint is often obtusely rounded and indistinctly notched at apex. In a number of species the elytra are armed in the males, the prothorax is nearly always transversely impressed towards the base and more feebly towards the apex, but as I consider this character absolutely valueless, as an aid to identification, I have not described it in any of the new species.

The clothing in all the species consists of long straggling griseous hairs, frequently intermixed with shorter ones on the elytra, and appears to be easily abraded; I have seldom considered it necessary to mention it; nor that (as is invariably the case) the tips of the mandibles are dark.

Some of the species, especially those of the *armipennis* group, are variable in their colours.

In addition to *fasciipennis* and *basipennis*, which are commented on below, the following species are unknown to me:—

Xanthochrous, Fairm.—A pale species with the scutellum, parts of the legs and apex of antennae dark, and with the summit of the head sometimes infuscate. The head is stated to be punctulate, but its sculpture is not otherwise mentioned.

Tachyporoides, Fairm.—Close to but more convex than the preceding species, according to Fairmaire.

Segmentarius, Fairm. Described as close to *cristatifrons*, but with the head and elytra simple, although the head is said to be "inter oculos profunde excavato et utrinque compresso elevato." The type was apparently a male.

Nubipennis, Fairm.—Described as close to *marginiventris*.

Telephoroides, Fairm.—Apparently allied to *alterniventris*, *basiventris*, etc.; but with the legs entirely pallid. The type was apparently a male.

Lacsifrons, Fairm.—The description of the head of this species is certainly suggestive of a male *Helcogaster*, and the elytra are coloured much as in some of the varieties of *H. varius*, but the abdomen and appendages are different.

Atronitens, Fairm. A small variable species, apparently belonging to *Helcogaster*; I have seen nothing which I can even doubtfully refer to it.

Philonthoides, Fairm.—Evidently a dingy species somewhat after the style of *pallidipennis*, but with the elytra darker and prothorax immaculate at sides.

The others may be tabulated as follows :—

A. Elytra armed in the male.*
  a. Armatura near apex.
    b. Armature knobbed at apex . . *blackburnii*, Lea.
    bb. Armature thin and acutely pointed . . . . . *cristatifrons*, Fairm.
    bbb. Armature wide and obtusely pointed . . . . . *pravus*, n. sp.
  aa. Armature near base.
    c. Head bifasciculate in male.
      d. Head of male largely impressed and without distinct punctures . . . . *fasciculatus*, n. sp.
      dd. Head of male feebly impressed and densely and distinctly punctate . . *uncinatus*, n. sp.
    cc. Head not fasciculate in male.
      e. Elytral armature pale and punctures dense and rather small . . . . . *armipennis*, Fairm.
      ee. Elytral armature dark and punctures sparser and much larger . . . . . *fossor*, n. sp.
AA. Elytra unarmed in the male.
  B. Prothorax fasciculate and deeply transversely and longitudinally impressed in male . . . . . *rhytideres*, Lea.
  BB. Prothorax not as in *rhytideres*.

---

* In the few instances where I do not know the male I assume that the species does not belong to this division; although quite probably *frenchi* does do so, the female of that species, however, is very distinct.

C. Prothorax very distinctly transversely strigose.
f. Prothorax uniformly pale . *vigilans*, n. sp.
ff. Prothorax with a wide black fascia . . . . *strigicollis*, n. sp.
CC. Prothorax not strigose.
D. Prothorax partly dark.
g. Elytra entirely dark.
h. Prothorax with large and distinct punctures, legs black . . . . *punctatus*, n. sp.
hh. Prothorax with indistinct punctures, legs pale . . . *telephoroides*, Fairm.?
gg. Elytra entirely pale or at most infuscate in places.
i. Elytra entirely pale *pallidipennis*, Macl.
ii. Elytra longitudinally infuscate . . . *marginiventris*, Fairm.
ggg. Elytra with half or more of the surface black . . . . . *elongatus*, Macl.
DD. Prothorax entirely pale.
E. Elytra entirely pale . . . *longus*, n. sp.
EE. Elytra pale at apex . . *frenchi*, n. sp.
EEE. Elytra entirely dark, or dark at apex.
F. Basal joint of antennae of male much stouter than usual . . . . . *cyaneipennis*, Macl.
FF. Basal joint normal.
G. Antennae subpectinate or very strongly serrate.
j. Basal joint of front tarsi of male more than half their total length . . . . . *elegans*, n. sp.
jj. Basal joint of male much shorter.
k. Elytra partly pale.
l. Pale markings longitudinal *longipes*, n. sp.
ll. Pale markings transverse.
m. Head partly dark . *variipennis*, n. sp.
mm. Head entirely pale . *lepidus*, Lea (in part).

nn. Elytra entirely dark.*
n. Abdomen with only one or two apical segments dark.
o. Intermediate segments maculate pale . . *maculiventris*, n. sp.
oo. Intermediate segments entirely pale *apiciventris*, Lea.
nn. Abdomen entirely dark, or with more than two apical segments dark.
p. Elytra very indistinctly punctate . . . *bifoveatus*, Lea.
pp. Elytra distinctly punctate.
q. Front tibiae entirely dark . . . . . *triimpressus*, n. sp.
qq. Front tibiae partly dark . . . . . *pictipes*, Lea.
qqq. Front tibiae entirely pale.
r. Four hind femora and tibiae pale . *rhagonychinus*, Fairm.
rr. Four hind femora and tibiae partly or entirely dark.
s. Head pale at base . . . *simulator*, n. sp.
ss. Head dark at base . *variipennis*, n. sp. (in part).

GG. Antennae at most feebly serrate.
H. Abdomen with at least one segment entirely pale.
t. Elytra pale at base . . . . . *atricapillis*, n. sp.
tt. Elytra entirely dark.†
u. Prothorax transverse . . . *basiventris*, Lea.
uu. Prothorax longer than wide.
v. Tip of abdomen dark . . *alterniventris*, Fairm.
vv. Tip of abdomen pale . *longicollis*, Lea.

---

* In *maculiventris* the suture is sometimes pale at the base.
† In *alterniventris* the elytra are sometimes pale at the base, but never as in *apicalis*.

HH. Abdomen entirely dark, or without an entirely pale segment.
I. Femora partly pale.
w. Abdomen entirely dark . . *facialis*, Fairm.
ww. Abdominal segments with pale margins.
x. Pale margins very narrow *latipennis*, Lea.
xx. Pale margins of considerable width . . *cervicalis*, Germ.
II. Femora entirely dark.
J. Muzzle pale.
y. Elytra dark, without metallic gloss . . . . . *invenustus*, Lea.
yy. Elytra metallic blue or green . . . . . *pallidifrons*, n. sp.
J. J. Muzzle dark.
K. Large and comparatively robust . . . . . *cyanopterus*, Boh.
KK. Very narrow and elongate . . . . *angustatus*, Lea.

CARPHURUS CERVICALIS, Germ., Linn. Ent., III, 1848, p. 183 ; Fairm., Journ. Mus. Godeffr., 1879, p. 110.

I have a specimen from S. Australia (from the Adelaide Museum) named as *cervicalis* and agreeing with the description of that species, except that it is larger ($3\frac{1}{2}$ instead of $2\frac{1}{2}$ German lines).* Its head between the eyes has a roughly circular impression.

Two specimens from the Swan River may represent a variety; they have the elytra more of a coppery-green with the greater part of the head black† and more distinctly punctate at the base, in one specimen four, in the other five, of the basal joints of the antennae are red. There are also other slight discrepancies, but as these two specimens are males whilst the other is a female, I have not ventured to treat them as other than a possible variety.

Hab. S. AUSTRALIA: Yorke's Peninsula; VICTORIA: Chiltern.

* *Brevipennis* (the preceding species in Germar's paper) is described as $2\frac{1}{4}$ lines; I have never seen specimens less than 3 German lines in length.

† The red portion of the head varies considerably in *cervicalis*.

Carphurus cyanopterus, Boh. (*Helcogaster*), Res. Eugen., 1858, p. 82, Pl. I, fig. 4.

The type of this species was described as having a small transverse black spot near the apex of the prothorax; two specimens before me have a blackish streak close to the front of the prothorax, but in all the others this segment is unclouded.

Hab. N. S. Wales: Sydney, Blackheath; Victoria: Macedon, Gisborne, Brighton, Loutit Bay; W. Australia: Mount Barker.

Carphurus cyaneipennis, Macl., Trans. Ent. Soc., N. S. Wales, II, p. 265; Fairm., Journ. Mus. Godeffr., 1879, p. 108.

Var. *aeneipennis*, Fairm., Pet. Nouv. Ent., 1877, p. 161; Journ. Mus. Godeffr., 1879, p. 107; *testaceipes*, Lea, P. L. S., N.S.W., 1895, p. 254.

The type of *cyaneipennis* is a male, and the basal joint of its antennae is very peculiar; I have seen no specimen agreeing with it in the colour of its elytra, but have myself described a form in which the elytra are of a dark brassy-green, at the time thinking it a distinct species. On comparing the types together, however, I was convinced that, despite the difference in the colour of the elytra, the two forms belonged to but one species.

The female has longer antennae than the male, with the basal joint smaller and not at all emarginate on its upper surface, and the apical six (to eight) joints infuscate. The female of this variety has been named *aeneipennis* by Fairmaire.

Hab. Queensland: Gayndah, Peak Downs, Port Denison; N. S. Wales: Tamworth, Forest Reefs, Whitton; S. Australia.

Carphurus elongatus, Macl., Trans. Ent. Soc., N. S. Wales, II, p. 206; Fairm., Journ. Mus. Godeffr., 1879, p. 105. (*Figs.* 168, 169.)

Although not mentioned in the description, the type has the inner angles at the apex of the elytra pale.

A male from Studley Park has the apical two-thirds of the elytra entirely dark; its head has a thick wheal-like

elevation, in front of which the surface is irregularly impressed ; it is also rather smaller than the average male of *elongatus.*

Hab. QUEENSLAND : Gayndah, Peak Downs, Gympie, Bundaberg ; N. S. WALES : Tweed River, Sydney, Forest Reefs, Oberon, Blue Mountains, Illawarra, National Park, Whitton ; VICTORIA : Studley Park, Chiltern.

CARPHURUS APICALIS, Macl., Trans. Ent. Soc., N. S. Wales, II, p. 266 ; Fairm., Journ. Mus. Godeffr., 1879, p. 106.

The type of this species is a male, and its head has a large median elevation narrowed in front so as almost to be pear-shaped.

There are two specimens before me which agree exactly* with the description of *apicalis* and were previously tabulated by me as that species.† On comparing them with the type, however, I find that the male differs considerably in the sculpture of its head, and I have now formally described it under the name of *Helcogaster bacchanalis.*

CARPHURUS AZUREIPENNIS, Macl., Trans. Ent. Soc., N. S. Wales, II, p. 266 ; Fairm., Journ. Mus. Godeffr., 1879, p. 108.

The type is a male, and the only specimen I have seen ; in appearance it is close to the type of *cyaneipennis* except for its dark abdomen ; but the head is very different, having a small subconical tubercle on each side near the eye, between these is a broad moderately long feebly elevated space. The description of the head in the original description is misleading, as I certainly cannot regard it as deeply bicanaliculate from any direction it is viewed from.

Hab. QUEENSLAND : Gayndah.

CARPHURUS PALLIDIPENNIS, Macl., Trans. Ent. Soc., N. S. Wales, II, p. 267 ; Fairm., Journ. Mus. Godeffr., 1879, p. 105. (*Fig.* 92.)

The type of this species is a female. It is close to *marginiventris* but differs in having the head longer, the

* Except that the prothorax by measurement is not really longer than wide, although apparently so at a glance.

† In that table the position assigned to *apicalis* will still hold good.

elytra immaculate and with somewhat smaller and denser punctures. Its elytra, as in that species, are clothed with fine whitish pubescence. Its abdominal segments are tipped with red.

There are two specimens before me which I believe to be males of the species; they were beaten from *Casuarina* close to the Parramatta River. They are rather smaller than the females and have the prothorax rather shorter, but in colour and in all characters except those subject to sexual variation they agree exactly with the type. Between the eyes is a slightly elevated space, on this are three tubercles, the median one of which is shaped somewhat as a top, of which the peg is long and directed towards the base; the lateral tubercles are smaller but more suddenly elevated and obliquely placed; seen from behind the tubercles appear to be placed in a transverse row and to be of equal size. The front of the prothorax has two small foveae, separated posteriorly but conjoined in front, in length they are about one-sixth of the length of the prothorax itself and conjoined are heart-shaped. The basal joint of the front tarsi is large and black-rimmed internally.

Hab. Queensland: Gayndah; N. S. Wales: Wollongong, Sydney.

Carphurus marginiventris, Fairm., Journ. Mus. Godeffr., 1879, p. 106. (*Fig.* 93.)

I have only seen one specimen, a female, agreeing exactly with the description of this species; which is said to have a median black spot on the head, the prothorax with a longitudinal reddish vitta and the elytra with an indeterminate vitta on each and the apex infuscate. The male (unknown to Fairmaire apparently) has (at least in the case before me) the dark markings at the sides of the prothorax much reduced in size and the median spot of the head absent; its elytra, however, are as in the female. The apex of its prothorax is depressed and slightly notched in the middle so that when seen directly from behind it appears to have projecting points. In both cases the sides of the prothorax are coarsely punctate.

Hab. N. S. Wales: Sydney, Gosford.

CARPHURUS FACIALIS, Fairm., Pet. Nouv. Ent., 1877, p. 161; Journ. Mus. Godeffr., 1879, p. 107.

A male from Sydney (the original locality) agrees with Fairmaire's description, except in having the tarsi (except at base) and the apex of tibiae infuscate.

Hab. N. S. WALES: Sydney.

CARPHURUS ALTERNIVENTRIS, Fairm., Journ. Mus. Godeffr., 1879, p. 108; Lea, P. L. S., N.S.W., 1895, p. 251.

Of five specimens of this species before me two have the head entirely pale, the third has a transverse fascia between the eyes, the fourth has the sides and base dark, and the fifth has the head entirely dark except for a rather large indistinct subbasal spot.

Hab. QUEENSLAND: Peak Downs; N. S. WALES: Tweed and Clarence Rivers, Sydney.

CARPHURUS ARMIPENNIS, Fairm., Journ. Mus. Godeffr., 1879, p. 109.

The type of this species was a male and from Queensland. It had the head 6-foveate, abdomen red and the elytra armed, with their suture reddish. This species is somewhat variable in colour and there are several others having the elytra of the males somewhat similarly armed, but differing in the colour of the abdomen, sculpture and clothing of head, and punctures of elytra.

The elytra are very variable in colour, occasionally being entirely dark, but often with the suture reddish, not infrequently there is a wide subbasal reddish fascia, or this fascia may be broken up into irregular spots, or with an extension reaching almost to the apex.

The female, as a rule, is larger than the male, has the head with several feeble impressions and the elytra simple; the latter are sometimes dark and sometimes their sides and suture are reddish, but I have seen no specimens in which they are fasciate.

Hab. QUEENSLAND: Cairns, Bowen, Port Denison.

CARPHURUS BASIPENNIS, Fairm., *l. c.*, p. 109.

I have previously identified and tabulated a South Australian insect as this species, and indeed it agrees very well with the original description; but it is so unlikely

that a South Australian insect should occur at Peak Downs in Queensland and at no intermediate places that I have for the present at least placed it amongst some undetermined forms. The South Australian species is a *Helcogaster*, a genus not acknowledged as distinct by Fairmaire.

Hab. QUEENSLAND: Peak Downs.

CARPHURUS FASCIIPENNIS, Fairm., *l. c.*, p. 109; Lea, P. L. S., N.S.W., 1895, p. 250.

I have previously identified and tabulated as this species an insect which, although it agrees fairly closely with the description, is, I am now convinced, not that species but an allied one. It is not here described, as the only specimen now before me has damaged antennae.

Hab. QUEENSLAND: Peak Downs.

CARPHURUS DIOPTHALMUS, Fairm., Pet. Nouv. Ent., 1877, p. 161; Journ. Mus. Godeffr., 1879, p. 107.

There are two specimens (from Belmore and the Blue Mountains) which with some hesitation I refer to this species. In both specimens the antennae (not mentioned in the original description) have the three basal joints entirely and the next two partly pale, the rest being blackish. In one (a male) the head has a black spot at the base and the legs are entirely pallid; in the other (a female) the base of the head and the femora are infuscate.

Hab. QUEENSLAND: Gayndah.

CARPHURUS ANGUSTATUS, Lea, P. L. S., N.S.W., 1895, p. 250.

Although, as pointed out in the original description, this species is less robust than *cyanopterus*, it can be more readily separated from that species by its elytral punctures; of these in *angustatus* the majority are clearly cut, whilst in *cyanopterus* they are sparser and although many of them are larger there are but few that are at all clearly defined. In colour the two species are almost identical.

Hab. N. S. WALES: Tamworth; QUEENSLAND: Brisbane.

CARPHURUS LONGICOLLIS, Lea, *l. c.*, p. 252.

The male of this species has a thick and wheal-like but only moderate elevation on the head, the elevation

becoming irregular in front and marked by a small oblique tubercle on each side between the eyes.

A specimen representing a variety is in Mr. Froggatt's collection. It differs from the type in having the basal fourth of the elytra testaceous.

Hab. N. S. Wales: Gosford, Blue Mountains, Richmond River, Sydney, Galston; Victoria: Lilydale.

Carphurus latipennis, Lea, *l. c.*, p. 223.

This species is very close to *cervicalis*, but is larger, the elytra are wider with denser and more clearly defined punctures and the reddish margins to the abdomen are much narrower.

Hab. N. S. Wales: Forest Reefs, Sydney; Victoria: Brighton; W. Australia: Swan River.

Carphurus apiciventris, Lea, *l. c.*, p. 257.

var. *dubius*, Lea, *l. c.*, p. 257.

There are three males of this species in the Macleay Museum and all have the legs (except parts of the tarsi) and the head entirely pallid.

Hab. N. S. Wales: Galston, Lane Cove, Otford.

Carphurus bifoveatus, Lea, *l. c.*, p. 258.

The types of this pretty little species are both males; in appearance they are much like the females of *Balanophorus janthinipennis*, but have the elytra very feebly punctate. The female has the front tarsi simple but the antennal serrations are much as in the males; of two specimens before me one has the front tibiae red and abdomen as in the males, the other has the front tibiae dark and four apical segments of abdomen black, the basal one being entirely (instead of partly) red.

Hab. N. S. Wales: Galston, Sydney.

Carphurus invenustus, Lea, *l. c.*, 1901, p. 482.

A female from Sydney differs from the type female in having the basal two-fifths of head deep black, and the prothorax almost without traces of the dark lateral patches.

Hab. N. S. Wales: Nowra, Sydney.

CARPHURUS RHYTIDERES, Lea, *l. c.*, p. 481. (*Fig.* 94.)

A male specimen sent to me from S. Australia (but without exact locality) by Mr. H. H. D. Griffith differs from the types in having the dark basal markings of the head reduced to a small spot, the apical patch of the prothorax much reduced in size and not transverse, the legs entirely pale and the apical two-thirds of the antennae infuscate only. Its prothorax is without subfasciculate tufts of black hair and the latero-basal grooves are not so deep, but the ridges bounding them are higher and more like elongated tubercles than in the types.

Hab. W. AUSTRALIA: Geraldton; S. AUSTRALIA.

XANTHOCHROUS, Fairm., Pet. Nouv. Ent., 1887, p. 161; Journ. Mus. Godeffr., 1879, p. 105.

QUEENSLAND: Gayndah.

TACHYPOROIDES, Fairm., Pet. Nouv. Ent., 1877, p. 161; Journ. Mus. Godeffr., 1879, p. 105.

QUEENSLAND: Peak Downs.

CRISTATIFRONS, Fairm., Pet. Nouv. Ent., 1877, p. 161; Journ. Mus. Godeffr., 1879, p. 105; Lea, P. L. S., N.S.W., 1895, p. 247. (*Fig.* 107.)

N. S. WALES: Sydney, Galston; VICTORIA: Chiltern.

SEGMENTARIUS, Fairm., Pet. Nouv. Ent., 1877, p. 161; Journ. Mus. Godeffr., 1879, p. 106.

QUEENSLAND: Peak Downs.

NUBIPENNIS, Fairm., Journ. Mus. Godeffr., 1879, p. 106.

QUEENSLAND: Peak Downs.

TELEPHOROIDES, Fairm., *l. c.*, p. 106.

QUEENSLAND: Peak Downs.

LAESIFRONS, Fairm., *l. c.*, p. 107.

QUEENSLAND: Peak Downs.

PHILONTHOIDES, Fairm., *l. c.*, p. 108.

QUEENSLAND: Rockhampton.

RHAGONYCHINUS, Fairm., *l. c.*, p. 108.

N. S. WALES: Sydney, Galston.

ATRONITENS, Fairm., *l. c.*, p. 109.
N. S. WALES: Sydney.

SCAPULATUS, Fairm., *l. c.*, p. 109.
QUEENSLAND: Rockhampton; N. S. WALES: Galston.

BLACKBURNI, Lea, P. L. S., N.S.W., 1895, p. 247. (*Fig.*108.)
S. AUSTRALIA: Adelaide, Mount Lofty.

BASIVENTRIS, Lea., *l. c.*, p. 251.
N. S. WALES: Como.

LEPIDUS, Lea., *l. c.*, p. 255.
N. S. WALES: Galston.

PICTIPES, Lea., *l. c.*, p. 256.
N. S. WALES: Como, Belmore, Blue Mountains.

CARPHURUS PRAVUS, n. sp. (*Fig.* 5.)

♂. Flavous; base of head (both above and below), scutellum, a large space on each elytron, abdomen (except apical segment and apex and sides of the others), meso- meta- and apex of prosternum, coxae, femora (apex excepted) tarsi and seven terminal joints of antennae, black or blackish.

Head elongate; distinctly punctate and at base transversely strigose; largely excavated between eyes, the excavation divided into three parts, of which the median one is surrounded by an acutely raised and sinuous carina. *Antennae* rather short, 3rd–10th joints obtusely serrate, 11th longer than 10th and obtuse at apex. *Prothorax* distinctly longer than wide, side constricted near base. *Elytra* wider than prothorax, with small moderately dense punctures, sides from near base thickened and towards the apex semicircularly emarginate, near the hinder edge of emargination a short blade-like process projecting forwards and downwards. Basal joint of front *tarsi* small, shorter than 2nd, with a curved black-rimmed inner margin.

Length to apex of elytra 3, of abdomen 5 mm.

Hab. N. S. WALES: Jenolan (*A. M. Lea*).

The dark portion of the elytra is median in position and covers rather more than half the surface, it touches the suture but not the sides, the portion of the elytra behind it is paler than that before it. On the head the dark portion at the base is confined to the middle. The median of the three cephalic excavations is bilobed, and

surrounded by a narrow acutely raised continuous carina, almost in the shape of the figure 8. In *cristatifrons* the median excavation is of very different shape, being large at the base and open in front and seen from behind a much stronger and more acute elevation appears on each side of it. The armature of the elytra is also not sharp pointed and projects more downwards.

There is another species allied to *cristatifrons* but with the head crested as in the present species and the armature of elytra smaller. But the only specimens of it I have seen (and which are in the Macleay Museum) are not in condition to be described.

CARPHURUS FASCICULATUS, n. sp.

♂. Flavous; middle of base of head, elytra (except suture), tip of abdomen and base of each of the other segments (except the penultimate), meso- and metasternum, coxae four hind femora and seven terminal joints of antennae black; tarsi more or less dark. Head with two fascicles of black hairs, the fascicles conjoined at base; sides with straggling blackish hairs, distinctly denser in front of prothorax than usual.

Head elongate; indistinctly punctate, base transversely strigose; irregularly excavated between and behind eyes, the hinder excavation deep and quadrilobed, of these the median lobes are smaller but deeper than the others, and partly concealed by the fascicles. Antennae comparatively short and stout, 3rd-10th joints obtusely serrate, 11th the length of 10th and obtusely notched at apex. *Prothorax* distinctly longer than wide, not much narrower than head, apical two-thirds sub-parallel, thence rather rapidly diminishing in width to base. *Elytra* not much wider than front of prothorax; with dense moderately small but sharply defined punctures; sides at basal third suddenly and strongly incurved, thence gradually dilated towards apex. Basal joint of front *tarsi* as long as the two following combined, inner margin straight and black rimmed.

Length to apex of elytra 5, of abdomen 7 mm.

Hab. N. S. WALES: Richmond River (*A. J. Coates*).

Allied to *armipennis* but readily distinguished by the bifasciculate and differently impressed head and bicoloured abdomen. The bases of the fascicles (which are distinct from all directions) are on the lobe between the two sub-basal excavations. The elytra have a slight purplish gloss and the suture is very narrowly pale.

A variety from Gympie (from W. W. Froggatt) differs in being distinctly wider, with the elytra entirely dark and rather more strongly punctured and the head entirely pallid. Both sexes of this form are before me and the female differs from the male in having the head, elytra and tarsi simple.

Another variety (from the Clarence River) has a large space about the suture pallid and the basal spot on the head of large size.

CARPHURUS UNCINATUS, n. sp. (*Fig.* 109.)

♂. Flavous-red; elytra, abdomen (apex and sides of all the segments pale, except the apical which is entirely pale and the subapical which is dark at the base and sides) coxae, femora (except apical third of front pair) and seven terminal joints of antennae black; tarsi more or less infuscate. Head with two fascicles (conjoined at base) of black hair; sides of prothorax in front with much longer, but not much denser hair than usual.

Head elongate; densely punctate, base transversely strigose; rather feebly impressed between eyes. Antennae much as in the preceding species. *Prothorax* not much longer than wide, sides slightly diminishing in width to apex and more noticeably to base. *Elytra* much as in the preceding species except that the punctures are slightly larger and the armature more pronounced. Basal joint of front *tarsi* almost as long as the two following combined, with a slightly curved black-rimmed inner margin.

Length to apex of elytra 4½, of abdomen 7 mm.

Hab. N. S. WALES: National Park (*A. M. Lea*).

With the armed elytra and bifasciculate head of the preceding species, but the head very distinctly punctured, much less excavated between the eyes (that portion indeed being more convex than concave); prothorax shorter, elytra with denser and more rugose punctures and more of the legs and abdomen black. The fascicles are also somewhat different. The elytra have a slight bluish gloss.

A variety from Brisbane differs in having the apical fourth of the elytra reddish-flavous, this space being narrowly connected along the suture with a narrow triangular post-scutellar space of the same colour; not one of its abdominal segments is black, the basal ones being rather lightly infuscate only. Its head has two oblique ridges on each side, an acute one commencing at the

middle of the eye and terminated at the fascicles and a more obtuse one, which immediately in front of the fascicles turns round and joins in with the acute one; at the outer angle of each band is a small circular impression.

The sculpture of the head is much the same in both the specimens before me, but is more distinct in the variety than in the type. It, however, cannot be seen distinctly except from certain directions.

CARPHURUS FOSSOR, n. sp.

♂. Flavous; sides of elytra (but not the extreme margins), metasternum, and seven terminal joints of antennae black or blackish.

Head elongate; indistinctly punctate, base very feebly transversely strigose; rather largely excavated, but the excavations not sharply defined. Antennae shorter but otherwise much as in the two preceding species. *Prothorax* not much longer than wide, very little narrower than head, base not much narrower than apex. *Elytra* not much wider than prothorax, with moderately dense and rather large clearly defined punctures, sides much as in *fasciculatus*. *Legs* comparatively short; basal joint of front tarsi as long as the two following combined, with a curved, black-rimmed inner margin.

Length to apex of elytra 4, of abdomen 6 mm.

♀. Differs in having the head very feebly impressed and with simple elytra and tarsi.

Hab. N. W. AUSTRALIA (types in Macleay Museum).

In the type male the legs, except for a slight infuscation of the tarsi, are entirely pale, in the female the four hind femora are dark. Regarding the dark portion of the elytra as the ground-colour, the pale discal marking commences very narrowly at the scutellum (itself pale), close behind it is suddenly dilated, then becomes subparallel to near the apex, and is suddenly terminated before the apex, the whole marking resembling the blade of a spade. The outer margins are very narrowly pale from the armature to the apex. The lower surface of the abdomen is also pale, except for a slight infuscation along the middle of the basal segments. On the head of the male there are about eight indistinct excavations, but except for a moderately distinct subbasal one there are no distinct costae.

Allied to the two preceding species, but readily distinguished from both by the nonfasciculate head. The impressions of the head are different to those of *armipennis*; the elytra have considerably larger and sparser punctures and the armed portion is dark instead of pale.

CARPHURUS FRENCHI, n. sp.

♀. Flavous-red; base of head (both above and below), scutellum, greater portion of elytra, meso- meta- and front part of prosternum, abdomen (two apical segments and apex of each of the others excepted), coxae and femora (tips excepted) deep black; apical two-thirds of antennae and tarsi more or less infuscate.

Head elongate, sides and base punctate and base transversely strigose; feebly tri-impressed between eyes. Antennae moderately long and rather thin, obtusely serrate; 11th joint slightly longer than 10th and obtusely notched at tip. *Prothorax* distinctly longer than wide, sides rounded and towards base diminishing in width. *Elytra* gradually dilating towards apex, where each is separately strongly rounded; with rather small irregular punctures. Front *tarsi* simple.

Length of apex of elytra $3\frac{1}{2}$, of abdomen 5 mm.

Hab. VICTORIA (type in C. French's collection).

The dark basal marking of the head is slightly advanced along the middle. The apical fourth of the elytra is pale and there is a fairly large pale spot slightly inwards of each shoulder. The extreme base of the head is foveate in the middle, but this fovea is probably usually concealed by the overlapping prothorax.

In appearance somewhat resembling *blackburni* and possibly allied to that species (if it is the male will have armed elytra), but the elytra and abdomen differently coloured, and elytral punctures very different.

CARPHURUS STRIGICOLLIS, n. sp.

♀. Black, elytra with a greenish or coppery-green gloss; parts of muzzle, a curved fascia connecting the eyes, base and apex of prothorax, extreme base of tibiae and lower surface of three basal joints of antennae red or reddish.

Head rather less narrowed towards base than usual; very densely punctate, base transversely strigose; feebly impressed between eyes. Antennae moderately long; 3rd–8th joints very feebly serrate, 11th

distinctly longer than 10th and obtusely pointed. *Prothorax* not much longer than wide, base and apex subequal; densely transversely strigose. *Elytra* gradually dilated towards apex, where each is separately rounded; densely and rugosely but not coarsely punctate. *Abdomen* with distinct punctures. Front *tarsi* simple.

Length to apex of elytra 4½, of abdomen 7½ mm.

Hab. New South Wales: Jenolan (*J. C. Wiburd*); Victoria (National Museum); West Australia: King George's Sound (Macleay Museum).

A very distinct species even apart from colour. The prothorax might be regarded as red with a dark subapical fascia occupying rather more than half the total area.

Carphurus vigilans, n. sp.

♂. Flavous-red, elytra black with a purplish gloss, front coxae pale except for an infuscate spot on each; front tarsi and tibiae, four hind knees and apex of tibiae, two basal and parts of the 3rd and 11th joints of antennae pale, rest of legs and antennae black or infuscate; middle of base of basal segments of abdomen infuscate.

Head elongate, with scattered punctures, base transversely strigose; a deep curved impression between eyes, and a smaller impression in front, the space between elevated and with small acute tubercles. Eyes very large, about half the total width of head and rather more than half its total length. Antennae rather short and strongly serrate, 11th joint rounded at apex and slightly longer than 10th. *Prothorax* not much longer than wide, apex distinctly wider than base; densely transversely strigose. *Elytra* but slightly dilated towards apex, where each is rather strongly separately rounded; with dense, clearly defined but not very large punctures. Front *tarsi* rather short, basal joint shorter than the two following joints, with a strongly curved dark (but not black) rimmed inner margin.

Length to apex of elytra 3, of abdomen 5½ mm.

♀. Differs in having the head almost smooth, the eyes much smaller (though still of comparatively large size) and the tarsi simple.

Hab. Queensland: Kuranda (*H. H. D. Griffith* and *F. P. Dodd*), North Queensland (Macleay Museum).

On the inter-ocular elevation of the male there are five small conicle tubercles—two close to each eye, the other at the middle of its base. Seen from behind the head appears to have three small tubercles, of which the median is flat-topped; from the sides two tubercles can be seen, of which

the front one is twice the size of the other. The eyes of the male are considerably larger than in any other species here recorded, and in fact almost as large as in the male of *Balanophorus macleayi* or *scapulatus*. The prothorax is transversely strigose much as in the preceding species but the two have little else in common.

The type male is in Mr. Griffith's collection, the type female in the Macleay Museum.

CARPHURUS VARIIPENNIS, n. sp.

♂. Flavous or reddish-flavous; head (muzzle excepted), scutellum, elytra (wholly or in part), abdomen (sides and apex narrowly excepted), hind coxae, femora (front pair almost entirely pallid, the others only at the base), parts of tibiae and antennae (except basal joints), black; tarsi more or less infuscate.

Head rather short, with several feeble impressions; feebly punctate and towards base feebly strigose. Antennae subpectinate, 11th joint clavate and considerably longer than 10th. *Prothorax* distinctly (but not much) longer than wide, apex and sides rounded, base feebly bilobed. *Elytra* slightly dilated posteriorly, each separately rounded at apex, densely and minutely punctate. Basal joint of front *tarsi* large and wide, as long as the two following joints combined, with a black-rimmed inner margin, 2nd joint inserted near base of first and rather strongly curved.

Length to apex of elytra 3¼, of abdomen 5 mm.

♀. Differs in having the head smoother, the eyes smaller, the antennal serrations less pronounced, the elytra wider and the front tarsi simple.

Hab. QUEENSLAND: Brisbane (*R. Illidge*).

As both sexes are before me, and the female has simple front tarsi, I can be certain that this species is not a *Balanophorus*; the serrations of the antennae, however, are more pronounced than usual, the ramus of each of the 7th–10th joints being longer than its supporting joint; and of the 4th–6th almost or quite as long. The elytral punctures though small are sharply defined. Of three specimens before me one has the apical fourth, one the apical half, whilst the other has the entire elytra dark; there is a certain amount of variation in the colour of the legs and the three basal joints of antennae are either entirely pale or pale only on their lower surface; the apical half of the 11th joint is obscurely pale.

The species is allied to *rhagonychinus* and *apiciventris*; from the latter it is readily distinguished by the colour of the abdomen, from the former by darker legs and considerably longer antennal rami of the male.

CARPHURUS SIMULATOR, n. sp.

♂. Reddish-flavous; an inter-ocular fascia, scutellum, elytra (these with a slight bluish gloss), metasternum, abdomen, hind coxae, four hind femora and tarsi, apex of four hind tibiae, and eight terminal joints of antennae black or blackish.

Head elongate, basal half punctate, base very indistinctly strigose, between eyes with a feeble curved elevation, behind which is a narrow impressed line; each side in front feebly depressed, the space between feebly elevated, flat and shining. Antennae moderately long; strongly serrate; 11th joint longer than 10th, its middle thickened and apex acutely pointed. *Prothorax* distinctly longer than wide, sides distinctly decreasing in width to base. *Elytra* considerably wider than prothorax, moderately dilated posteriorly; densely, rather minutely and subrugosely punctate. Basal joint of front *tarsi* large, about half their total length, with a slightly curved black-rimmed inner margin.

Length to apex of elytra 4, of abdomen 6 mm.

Hab. NEW SOUTH WALES: National Park (*A. M. Lea*).

The inter-ocular fascia although very distinct is not sharply defined on its edges; it is, however, marked on its hinder edge by a narrow, curved, impressed line.

The species is closer to *rhagonychinus* than any other known to me, but the legs are differently coloured and the antennal serrations, though strong, are much less pronounced.

CARPHURUS TRIIMPRESSUS, n. sp.

♂. Black; elytra deep metallic blue; muzzle, prothorax, middle of lower surface of head, front coxae, base of front femora and parts of two basal joints of antennae flavous, or reddish-flavous.

Head moderately long; distinctly punctate, base rather strongly transversely strigose; a small but rather distinct impression between eyes and two larger and shallower ones in front. Antennæ not very long, strongly serrate; 11th joint longer than 10th, thickened towards but obtusely pointed at apex. *Prothorax* considerably longer than wide, apex very little wider than base. *Elytra* distinctly dilated posteriorly, each rather feebly separately rounded,

with dense and rather minute but clearly defined punctures. Basal joint of front *tarsi* large, about half their total length, inner margin slightly curved.

Length to apex of elytra 4, of abdomen 6 mm.

Hab. Victoria: Monbulk (*H. H. D. Griffith* ex *Jarvis*), Moorabin (National Museum).

The partly red muzzle is different to that of *pallidifrons*, and the serrate antennae also distinguish from that species and *cyanopterus*; from the other species having serrate antennae the dark legs will readily distinguish it.

Carphurus longipes, n. sp.

Flavous; part of elytra, metasternum, three apical segments of abdomen, four hind femora (extreme base excepted), hind tibiae (except at base), and eight terminal joints of antennae, black or almost so; tarsi more or less infuscate.

Head short, indistinctly punctate; without distinct impressions. Antennae rather long; 4th–10th joints rather strongly serrate, 11th longer than 10th. *Prothorax* much longer than wide, apex distinctly wider than base. *Elytra* slightly dilated posteriorly, each feebly separately rounded at apex; with small, scattered, indistinct punctures. *Legs* considerably longer and thinner than usual; basal joint of front tarsi about half their total length, with a slightly curved black-rimmed inner margin.

Length to apex of elytra 4, of abdomen 6½ mm.

Hab. N. W. Australia (type in Macleay Museum).

The dark portion of the elytra is very narrow at the base but is directed obliquely inwards so as to touch the suture at the apical third; in consequence there is a large elongate pale basal triangle. The apex of the apical joint of the antennae is pale.

I believe the specimen before me is a male *Carphurus*, but it is quite possibly a female *Balanophorus*.

Carphurus maculiventris, n. sp.

♀. Flavous; elytra deep metallic greenish- or purplish-blue; metasternum, apical segment of abdomen and a large spot on each of the 3rd and 4th, femora, four hind coxae and seven (or eight) terminal joints of antennae black; tarsi and four hind tibiae more or less infuscate.

Head rather short; indistinctly punctate; a longitudinal impression on each side in front. Antennae rather short and strongly

serrate; 11th joint longer than 10th. *Prothorax* slightly transverse, wider than head and almost as wide as prothorax, apex and sides rounded, base feebly bilobed. *Elytra* moderately dilated posteriorly, each feebly separately rounded at apex; with moderately dense, rugose punctures. Front *tarsi* simple.

Length to apex of elytra 4¼, of abdomen 7¼ mm.

Hab. N. W. Australia (type in Macleay Museum).

Of two females before me one has the elytra entirely dark, the other has the suture pale for a short distance behind the scutellum. The lower surface of the four basal segments of abdomen are more or less dark along the middle. The elytral punctures are of moderate size and density, but are nowhere sharply defined. The body is unusually robust for a *Carphurus*.

Carphurus pallidifrons, n. sp.

♂. Black; elytra deep metallic coppery-green (or blue); muzzle, prothorax, front coxae, knees and base of antennae, flavous or reddish-flavous.

Head rather short; with distinct scattered punctures, base transversely strigose; a large excavation between eyes, in the front two-thirds of which is a longitudinal space but little below the general level of head. Antennae long; 3rd–10th joints almost cylindrical, 11th longer than 10th and acutely pointed. *Prothorax* slightly longer than wide, almost as wide as head, base and apex subequal. *Elytra* rather narrow; at base very little wider than prothorax; with dense and rather small, subrugose punctures. Basal joint of front *tarsi* large, more than half their total length, with a curved inner margin.

Length to apex of elytra 4, of abdomen 6 mm.

♀. Differs in having the frontal impression less pronounced, the elytra wider and the tarsi simple.

Hab. Victoria: S. Wandin (— *Jarvis*), Jamor, Gisborne (*H. H. D. Griffith*), Preston (National Museum). N. S. Wales: Blue Mountains (*H. J. Carter*).

Of three specimens before me one male and one female have the two basal joints of antennae pale, in the other (a male) the five basal joints are pale. Most of the elytral punctures are confluent but a few are sharply defined.

The red muzzle, basal joints of antennae and knees readily distinguish this species from *cyanopterus* and *angustatus*;

the almost entirely dark legs and subcylindrical antennae from the other allied species.

CARPHURUS ELEGANS, n. sp.

♂. Flavous; elytra purplish-black; metasternum, apical segment of abdomen, hind femora (except at base) and apical half of antennae (but not the terminal joint), black or blackish; tarsi and four hind tibiae more or less infuscate.

Head rather short; with several feeble frontal impressions; a feeble curved impressed line connecting the eyes; behind this some distinct punctures, but base not distinctly strigose. Eyes rather larger than usual. Antennae moderately long, strongly serrate; 11th joint distinctly longer than 10th and obtusely pointed. *Prothorax* distinctly longer than wide, sides and apex rounded, base feebly bilobed and almost the width of apex. *Elytra* longer than usual, at base distinctly wider than prothorax, dilated towards and each strongly separately rounded at apex; densely minutely and rugosely punctate. *Legs* longer than usual, basal joint of front tarsi about two-thirds of their total length, with the inner margin straight and black rimmed.

Length to apex of elytra 5, of abdomen 8½ mm.

Hab. QUEENSLAND: Kuranda (*H. H. D. Griffith*, ex *F. P. Dodd*, February 1904).

One of the largest and finest species of the genus, with the basal joint of the front tarsi much longer than in any other species of the allied genera and almost perfectly straight (a most unusual feature), in the four hind tarsi also the basal joint is of unusual length. Of two males before me one has the entire elytra dark, but in the other they are pale at the base within a line extending to each side from the hind margin of the scutellum.

CARPHURUS LONGUS, n. sp.

♀. Flavous, apical half of antennae infuscate.

Head moderately long, with two feeble subfrontal impressions; ndistinctly punctate; base feebly transversely strigose. Eyes rather above the usual size. Antennae long and thin; all the joints more or less subcylindrical and flattened, 10th and 11th almost equal in length. *Prothorax* distinctly longer than wide, apex and sides near apex rounded; base feebly bilobed and distinctly narrower than apex. *Elytra* longer than usual, dilated towards and each separately strongly rounded at apex; with very dense and minute but clearly

defined punctures. *Legs* long; tarsi simple, but in all the basal joint of unusual length.

Length to apex of elytra 4½, of abdomen 7½ mm.

Hab. QUEENSLAND: Kuranda (*H. H. D. Griffith*, ex *F. P. Dodd*, February 1904).

A very distinct and almost entirely pale species in build of body much resembling the preceding, but the antennae and colours very different.

CARPHURUS ATRICAPILLIS, n. sp. (*Fig.* 167.)

♀. Pale reddish-flavous, apical third of antennae infuscate; apical third of elytra and a transverse spot on each side of metasternum black. Elytra clothed with short whitish pubescence; elsewhere (and especially at the sides and apices of abdominal segments) with long, thin, blackish hairs.

Head longer than wide; feebly strigose at base, almost impunctate. Eyes large but not very prominent. Antennae long and thin, none of the joints transverse. *Prothorax* longer than wide, apex wider than base, with the front angles strongly rounded. *Scutellum* strongly transverse. *Elytra* larger than usual, dilated posteriorly; with dense, small, and rather clearly defined punctures. *Legs* long and thin.

Length to apex of elytra 6, of abdomen 9 mm.

Hab. QUEENSLAND: Cairns (*E. Allen*).

After the style of the two preceding species, but at once distinguished by the elytra, the black apical marking of these is not cut straight across, but is narrowly encroached upon along the suture and semicircularly emarginated between the suture and sides. The elytral punctures are rather larger than in *longus*, the eyes are not quite so prominent, and the antennae are slightly stouter.

CARPHURUS PUNCTATUS, n. sp.

♂. Black; elytra deep bluish-green; part of muzzle; parts of prothorax and lower surface of four basal joints of antennae more or less red.

Head short; strongly and irregularly punctate; a longitudinal impression on each side in front. Antennae rather short and very obtusely serrate. *Prothorax* slightly transverse, with rather large irregularly distributed punctures. *Elytra* rather strongly dilated posteriorly, each rather strongly separately rounded at apex; with dense rugose punctures of moderate size. *Abdomen* with distinct

punctures. *Legs* comparatively short; basal joint of front tarsi large, about half their total length, inner margin curved.

Length to apex of elytra 5; of abdomen 7 mm.

Hab. TASMANIA: Bellerive (type in H. H. D. Griffith's collection).

A large dingy species. On the head near the middle of the base there is an indistinct reddish spot, the middle of the apex of the prothorax has an equilaterally triangular reddish spot and this is very indistinctly connected with the base, of which about one-fourth is pale. I do not anticipate however that these markings are constant, but the species is a very distinct one apart from colour. In the only specimen before me the terminal joint of each antennae is missing.

Genus NEOCARPHURUS, Lea, P. L. S., N.S.W., 1898, p. 580.

In this genus the prothorax is so deeply impressed near the base, that seen from the side there appears to be no room for the passage of any substance from the mouth to the abdomen. The elytra are impunctate in all the species and the head is largely excavated and tuberculated in the male. The eyes when wetted or in living specimens are of a beautiful emerald green.

I am acquainted with all the described species, and these, with two new ones, may be tabulated as follows:—

A. Prothorax dark, except at extreme base.
  a. Elytra of uniform colour . . . . . *sobrinus*, n. sp.
  aa. Elytra pale at base . . . . . *basizonis*, Lea.
AA. Prothorax pale; at most maculate.
  B. Elytra bicolorous.
    b. Tarsi pale . . . . . *impunctatus*, Lea.
    bb. Tarsi dark . . . . . *coatesi*, n. sp.
  BB. Elytra unicolorous.
    C. Elytra black . . . . . *tuberculatus*, Lea.
    CC. Elytra pale . . . . . *chlorops*, Lea.

NEOCARPHURUS BASIZONIS, Lea, P. L. S., N.S.W., 1901, p. 483.

The type of this species is a female; another (in the Macleay Museum) has the elytral markings reduced to a comparatively small spot on each shoulder. Another

specimen in that museum is possibly the male; it has the head testaceous, largely excavated in the middle and with a large frontal elevation, which is emarginate posteriorly and longitudinally impressed towards its base, but convex and rounded in front (seen from behind the base of this elevation appears as two small tubercles). The base of its elytra (except about the scutellum) is pale, the pale portion indistinctly continued along the sides to the apical fourth, when it is diverted across the disc towards (but not to) the suture, so as to appear as an indistinct, interrupted, subapical fascia. At this place the elytra are quite symmetrically impressed (traces of these impressions can be seen in the type). The prothorax instead of being black and testaceous at the base, is of a dingy brown, and almost white at the base.

Hab. N. S. Wales: Nowra.

TUBERCULATUS, Lea, *l. c.*, 1895, p. 246 (*Helcogaster*).

N. S. Wales: Sydney.

IMPUNCTATUS, Lea, *l. c.*, 249 (*Carphurus*).

N. S. Wales: Forest Reefs.

CHLOROPS, Lea, *l. c.*, 1898, p. 580. (*Fig.* 95.)

N.W. Australia: Behn River.

NEOCARPHURUS COATESI, n. sp.

♂. Deep glossy black; prothorax, basal third of elytra, four front femora and coxae, and base of hind femora of a reddish-brown; head and six basal joints of antennae somewhat paler, terminal joints infuscate. With a few moderately long scattered hairs.

Head irregularly and largely excavated; a strong trilobed elevation between eyes, the median lobe largest continued hindward and again elevated. Antennae simple, extending almost to apex of elytra, 11th joint long. *Prothorax* considerably longer than wide, sides decreasing in width from apex to base, near base strongly transversely impressed, base itself about half the width of apex. *Elytra* twice the width of the base of prothorax, and longer than prothorax and head combined; impunctate; sides towards apex largely but not suddenly impressed. *Legs* long and thin, basal joint of front tarsi dilated.

Length to apex of elytra 2, of abdomen 3 mm.

Hab. N. S. Wales: Sydney (*A. J. Coates*).

In the type specimen the apex of the abdomen appears to be terminated by three fascicles of hairs, much as it is in many of the *Staphylinidae*, a character apparently unique in the genus. Seen from the side the head bears a ridiculous resemblance to the head of a hen, the median tubercle standing for the comb. The basal joint of the front tarsi is rather smaller than is usual in the males of the allied genera, and owing to being much the same colour as the other joints is rather less distinctive.

NEOCARPHURUS SOBRINUS, n. sp. (*Fig.* 6.)

♂. Blackish-brown, abdomen black; legs piceous, in places diluted with testaceous; head and antennae (the terminal joints more or less infuscate) testaceous, extreme base of prothorax dull flavous, with pale, moderately long, scattered hairs.

Head wide largely and irregularly excavated; between antennae with a three-ridged elevated space (the spaces between the ridges concave), the median ridge longer than the others. *Prothorax* considerably longer than wide, sides diminishing in width from apex to near base, and then slightly dilated, near base less than half the width of apex and strongly transversely impressed, base itself feebly bilobed. *Elytra* much as in the preceding species. *Legs* long and thin; femora curved, basal joint of front tarsi large, with a black comb on its inner apex.

Length to apex of elytra 1⅝, of abdomen 3 (circ.) mm.

Hab. N. S. WALES: National Park (*A. M. Lea*).

Seen from behind the head appears to be supplied with two small acute tubercles between the eyes, this appearance being due to the lateral ridges, the median one though longer than the others being on a lower level, so as to be invisible from behind.

Genus HELCOGASTER, Boh., Res. Eugen., p. 81.

I believe Fairmaire * placed *Helcogaster* as a synonym of *Carphurus* and it probably is such †; but the majority of the species form a very natural group, the members of which are readily recognised by the naked eye alone, so that even if the genus is to be sunk in *Carphurus*, there

* In a note I did not make a record of and cannot now find.

† The first species (*cyanopterus*) referred to it by Bohemann is quite an ordinary *Carphurus*.

can be no harm in referring species to it which can be readily separated from the majority of *Carphuri*. The main distinguishing feature of *Helcogaster*, as I regard it, is the large excavations which are usually present in the heads of the males (although in some of the species of *Carphurus* the head is also largely excavated); the species are also flatter, and usually with the elytra very indistinctly or not at all punctured, and the antennae are also considerably longer.

The male can always be distinguished by the basal joint of its front tarsi having a black, or at least very dark, inner rim; this joint also is usually strongly rounded on the inner side. The excavations of the head are often very large, being both wide and deep, the posterior outlines of the excavations are usually trisinuate. On the front portion of the head there is often a large tubercle, this is often concave with more or less acute lateral ridges, and it is sometimes itself tuberculate; in a number of species it is present on the males even when the excavations are absent. The head when seen from behind or from the sides has often a very characteristic appearance and I have usually described these appearances as I believe them to be useful aids to the identification of most of the species; in looking at the head from behind the tubercles especially show up in a very distinctive way.

The clothing usually consists of long sparse hairs and in describing the species I have not considered it necessary to mention it. Some of the specimens examined were quite glabrous, but I have not even mentioned this as I think it quite likely that this was due in some cases to abrasion, as the hair appears to be but loosely fixed to the derm.

I previously described one species (*carinaticeps*) from a female only, and although this female is remarkably distinct I regret having done so, as I now think that no species of the genus should be described without knowing the male. The sculpture of the head is often so dissimilar, that without certain knowledge (such as by the examination of specimens taken *in cop.*), it is often quite impossible to mate the sexes; and the females of many species are so closely allied as to render their separation into species very difficult, even with the specimens before me; whilst from descriptions alone I believe it to be *impossible*; nevertheless the males, even although closely resembling each other

in colours, are very easily separated by the sculpture of the head.

With the exception of *brachypterus*, *impressifrons* and *carinaticeps*,* which are commented upon below, the males† of all the described species may be tabulated as follows:—

A. Prothorax strongly notched in front . *incisicollis*, n. sp.
AA. Prothorax spinose in front . . . . *spinicollis*, n. sp.
AAA. Prothorax entire at apex, or at most feebly bilobed.
B. Basal joints of antennae distorted . . *foveicornis*, n. sp.
BB. Basal joints not distorted.
C. Elytra very distinctly punctured . *punctipennis*, n. sp.
CC. Elytra indistinctly or not at all punctured.
D. Prothorax partly or entirely dark.
a. Head not largely excavated.
b. Head partly pale and distinctly punctured . . . *obliquiceps*, n. sp.
bb. Head entirely dark and impunctate . . . . . *gagatinus*, Lea.
aa. Head largely excavated.
c. Elytra partly pale . . . . *marginicollis*, Lea.
cc. Elytra entirely dark.
d. Prothorax raised in middle of apex.
e. Prothorax pale and strongly punctured on apical sides . . . . *ruficornis*, Lea.
ee. Prothorax entirely dark and without distinct punctures . . . . *canaliculatus*, Lea.
dd. Prothorax not raised in middle of apex.
f. Head with excavations transversely connected.
g. Head when seen from behind with a thin solitary tubercle . *parallelus*, Lea.

---

* And *punctilobus* and *bacchanalis*, which were described after the table was drawn up.

† I have not ventured to include any of the females in the table, although some of them are sufficiently distinct.

gg. Head otherwise sculptured . . . . . *niger*, n. sp.
ff. Head with excavations not transversely connected.
h. Excavations closed behind . . . . . *ater*, n. sp.
hh. Excavations open behind . . . . . *basirufus*, n. sp.
DD. Prothorax entirely pale.
E. Head sometimes concave but never largely excavated.
i. With a large frontal tubercle.
j. Elytra abdomen and legs dark . . . . . *helmsi*, n. sp.
jj. Elytra abdomen and legs partly pale . . . . . *tuberculifrons*, n. sp.
ii. Without a large frontal tubercle.
k. Head concave between eyes *bilobus*, n. sp.
kk. Head convex between eyes.
l. Shoulders pale . . . . *simpliciceps*, n. sp.
ll. Shoulders dark . . . *pulchripes*, n. sp.
EE. Head largely excavated.
F. Excavation trisinaute posteriorly.
m. Head entirely dark . . . *nigriceps*, n. sp.
mm. Head pale in front.
n. Greater portion of legs pale.
o. Head with a basal spot only . . . . . *maculiceps*, n. sp.
oo. Head with entire base dark . . . . . *fuscitarsis*, n. sp.
nn. Greater portion of legs dark.
p. Median tubercle decidedly raised above others . . . . . *tuberculatus*, n. sp
pp. Median tubercle not so raised.
q. Median sinus narrower than the lateral ones . . *varius*, Lea.

qq. Median sinus wider than the lateral ones.
r. Median sinus feebly curved . *decipiens*, n. sp.
rr. Median sinus strongly curved *tropicus*, n. sp.
FF. Excavation not trisinuate posteriorly.
G. Excavations longitudinal and basal as well as median . . . . . *sulciceps*, n. sp.
GG. Excavations transverse, or more or less rounded.
H. Head longitudinally as well as obliquely strigose . . . . . *strigiceps*, n. sp.
HH. Head transversely or not at all strigose.
I. Head entirely dark . *insularis*, n. sp.
II. Head entirely pale . *major*, Lea.
III. Head partly dark.
J. Antennae pale at base and apex . *foveiceps*, Lea.
JJ. Antennae pale only at base.
K. Elytra entirely dark . . . *concaviceps*, Lea.
KK. Elytra dark only at apex *rhyticephalus*, n. sp.

HELCOGASTER BRACHYPTERUS, Boh., Res. Eugen., 1858, p. 82; Lea, P. L. S., N.S.W., 1895, p. 244.

I find that I was mistaken in my previous identification of this species, so that the remarks given in the above reference would best be taken as unwritten.

The species belongs to a group of which it is almost—(in some species quite)—essential that the sex (not mentioned by Bohemann) should be stated.

I have two distinct species which agree exactly with the original description and a number of others which agree

fairly well except as to "*Capite . . . tenuiter longitudinaliter canaliculatum.*"

Hab. N. S. Wales: Sydney.

Helcogaster impressifrons, Boh., Res. Eugen., 1858, p. 83.

Apparently allied *foveiceps*, but elytra paler and not uniformly coloured, and only the basal and apical joints of antennae pale.

Hab. N. S. Wales: Sydney.

Helcogaster foveiceps, Lea, P. L. S., N.S.W., 1895, p. 237.

On a recently taken male of this species there is a narrow infuscate fascia (slightly interrupted at the middle) just behind the middle of the prothorax.

Hab. N. S. Wales: Sydney.

Helcogaster gagatinus, Lea., *l. c.*, p. 238.

Hab. N. S. Wales: Sydney, Galston, Forest Reefs.

var. occidentalis, n. var.

A male specimen from Rottnest Island (W. Australia) apparently represents a variety of this species; it differs from the type in being slightly smaller, with piceous instead of deep black elytra, and with the frontal impressions very feebly defined.

var. Tasmaniensis, n. var.

Another apparent variety occurs in Tasmania; it has the legs entirely and the antennae almost entirely dark *; the frontal impressions are rather less pronounced and the size is larger. The only male before me is 4 mm. in length, the females vary from 3 to 4 mm.

Helcogaster ruficornis, Lea, *l. c.*, p. 239.

This species is very close to *canaliculatus*, and I was at one time inclined to think that the two forms belonged to but one species, but after a careful examination of the

* Tasmanian specimens of many insects are noticeably larger and darker than their mainland fellows.

types (three of each), I cannot convince myself that such is the case. It differs from *canaliculatus* in having the antennae pale and the prothorax pale at the apex. Seen from behind the head appears to be in two irregular lobes with a deep channel between them. From behind the head of *canaliculatus* appears to have a rather shallow channel on each side in addition to the deep median one; but there may really be lateral channels in *ruficornis* that are concealed by the clothing. In both species from the sides there appear to be two tubercles over each eye (a small one at the middle and a larger one at the base), and the space between the median impression and each eye has a peculiar (almost spongiose) appearance. Both species were described as "almost impunctate," but in both there are some fairly distinct punctures on the head; whilst in *ruficornis* the apical sides of the prothorax are very decidedly punctate; in *canaliculatus* these parts are opaque but not distinctly punctured.

Hab. N. S. Wales: Sydney.

Helcogaster parallelus, Lea, *l. c.*, p. 141; 1898, p. 580. (*Fig.* 7.)

The type of this species is probably not typical, as it has the prothorax entirely dark except for a slight trace of testaceous on each side of the base; two others before me* have the base of the prothorax decidedly reddish.

A male also has the prothorax reddish at the base; its head is largely and deeply excavated between the eyes and in front. Seen from behind it appears to be largely excavated † with a thin, acute (almost spinose) median tubercle, and a large obtuse one close to each eye. Seen from in front the excavation appears to be very decidedly quadrisinuate posteriorly and supplied with three small conical tubercles in front.

The head of the female is more distinctly impressed than is usual in that sex.

Hab. W. Australia: King George's Sound, Albany,‡ Karridale.

* One of these was unfortunately described in 1898 as the male.

† In other species in which the head is fully as much or almost as largely excavated as in this, the head when seen from behind does not appear to be excavated at all, owing to the tubercles.

‡ Albany and King George's Sound are not necessarily the same; as Mr. Masters labelled all his captures both from the port itself

HELCOGASTER VARIUS, Lea, *l. c.*, 1895, p. 245.

var. PALLIDIPENNIS, Lea, *l. c.*, p. 246. (*Figs.* 8, 165.)

The elytra of this species are very variable in colour, ranging from entirely pale to entirely dark. The most common form perhaps and the one described by me as typical is that in which the sides at the base are pale, but the markings vary considerably in extent although the shoulders are always pale. A variety which I propose to name

var. NIGRIPENNIS, n. var.,

is perhaps almost as common; in this form the elytra are entirely dark. The variety in which the elytra are entirely pale I have seen only from Tamworth.

The various forms are all variable in size, are not sexual and freely pair with each other.

The species is abundantly represented in many parts of New South Wales, and there are many other species closely resembling both the typical form and the varieties, but as the head of the male is very peculiarly sculptured and quite constant in all the varieties (except to a slight extent in the depth of the excavations), I have considered it advisable to replace the original description of the head by a fuller one as follows :—

♂. Head transverse, with distinct punctures at base; largely excavated between the eyes, the excavation trisinuate posteriorly (the hind margins almost level with an imaginary line connecting the base of the eyes); median sinus smaller than the others, in front of it a small conical tubercle which is behind a rather shallow frontal excavation, on each side of this a small excavation connected with the posterior one by a curved line. Eyes large but not especially prominent. Seen from behind the head appears to be supplied with five small tubercles—three of equal size median and conical, and a larger and obtuse one close to each eye. There are really six excavations on the head, three being larger than the others, but they are all more or less connected with each other and are all often

---

and for some considerable distance inland as K. G. Sound; similarly Geraldton (there is also a Geraldton in Queensland) is not necessarily the same as Champion Bay, as Mr. Duboulay gave Champion Bay as the locality for insects that were collected many miles inland from that port. In the earlier days of Western Australia practically everything from that State was labelled "Swan River."

slightly obscured by pubescence. The extreme base of the head is transversely strigose, but this portion is usually concealed.

♀. Head less transverse and with smaller eyes, not excavated and with distinct punctures, basal third regularly convex, apical two-thirds flattened, with a feeble median longitudinal elevation in front.

It will be well for future entomologists before describing new species of the genus to try to identify this species; the sculpture of the head of the male is very distinct but the colours are very variable and each of its colour varieties is exactly or almost exactly represented in other species. It is widely distributed in New South Wales, and fully half of the specimens of the genus taken by myself or sent to me for examination belonged to it. The characteristic appearance of the male head is best seen from behind, the five tubercles being quite conspicuous and apparently (though really not so) in an even line. The head of the female, however, is much as in many other species.

Hab. N. S. Wales: Sydney, Galston, Little Bay, Mount Victoria, Jenolan, Queanbeyan, Clifton, Tamworth, Forest Reefs; Victoria: Mordialloc, Melbourne.

Helcogaster carinaticeps, Lea (*Carphurus*), *l. c.*, p. 248.

I was deceived by the sculpture of the head of the type of this species and noted it as a male *Carphurus*; its front tarsi are simple, however, and it is really a female *Helcogaster*. I do not know its male, but the tricarinate should render the female easy of recognition.

Hab. N. S. Wales: Sydney.

canaliculatus, Lea, P. L. S., N.S.W., 1895, p. 239.
N. S. Wales.

marginicollis, Lea, *l. c.*, p. 240. (*Fig.* 166.)
N. S. Wales: Galston, Kurrajong, Blue Mountains.

concaviceps, Lea, *l. c.*, p. 242.
N. S. Wales: Galston, National Park, Mount Victoria.

major, Lea, *l. c.*, p. 243.
N. W. Australia.

fuscitarsis, Lea, *l. c.*, p. 244.
N. S. Wales.

HELCOGASTER OBLIQUICEPS, n. sp.

♂. Black; head (except at base), basal half of antennae and parts of tibiae and tarsi testaceous; base of prothorax not quite as dark as the rest of its surface.

Head comparatively large, with small punctures at base, obliquely flattened and with coarse punctures between eyes. Antennae stout, rather short, the joints feebly serrate. *Prothorax* elongate, strongly transversely impressed at base. *Elytra* impunctate. Basal joint of front *tarsi* rounded and with a black inner margin.

Length to apex of elytra $1\frac{1}{2}$, of abdomen $2\frac{1}{4}$ mm.

Hab. N. S. WALES: Jenolan (*J. C. Wiburd*).

Differs from the males of the other species having the prothorax black by its flattened non-excavated head and by the colours and punctures of same.

HELCOGASTER NIGER, n. sp. (*Fig.* 9.)

♂. Black; knees and parts of five basal joints of antennae obscure testaceous.

Head large, deeply and largely excavated between eyes, the excavation trisinuate posteriorly, front with a large concave tubercle; base and sides transversely strigose and with a few scattered punctures. Antennae long, passing apex of elytra, none of the joints transverse. *Prothorax* feebly transverse, base strongly transversely impressed. *Elytra* almost impunctate. Basal joint of front *tarsi* about half their total length, rounded and with a black inner rim.

Length to apex of elytra 2, of abdomen 3 mm.

Hab. S. AUSTRALIA (type in Macleay Museum).

From the above the cephalic excavations are not unlike those of the males of *varius*, but seen from behind the head appears very different; and its sculpture is very different to all the others having the prothorax black. The large frontal tubercle from some directions appears to have its concavity opening behind into the deep median excavation, so that this then appears to be formed of four divisions of which the two lateral are larger than the two median. The lateral ones from some directions appear to be trilobed, so that the head then appears to have six instead of four irregular foveae. The elytra from some directions appear to be supplied with small wrinkled punctures, but these are never distinctly visible, and perhaps are really due to irregular contraction.

HELCOGASTER ATER, n. sp.

♂. Black; apical half of head, antennae (the apical half more or less infuscate), knees and front tibiae testaceous.

Head rather large, densely and rather strongly punctate and transversely strigose at base; largely excavated between eyes, the excavations consisting of two large foveae, each of which is open in front and closed behind, the two separated by an elevated ridge. Antennae rather thin, extending almost to apex of elytra. *Prothorax* elongate, strongly transversely impressed at base. *Elytra* impunctate. Basal joint of front *tarsi* short and stout but with a black inner rim.

Length to apex $1\frac{3}{4}$, of abdomen $2\frac{1}{2}$ mm.

Hab. W. AUSTRALIA: Donnybrook (*A. M. Lea*).

The large cephalic excavations of the male render this species very distinct.

HELCOGASTER INCISICOLLIS, n. sp. (*Fig.* 96.)

♂. Black; three basal joints of antennae testaceous; knees and part of front tibiae and tarsi very obscure testaceous.

Head with a transverse ridge between eyes, the ridge impressed in middle; each side of base with a large fovea or excavation, each side of middle of apex with a small rounded fovea. Antennae long and thin, passing apex of elytra. *Prothorax* longer than wide, produced and deeply notched in front, the produced apices slightly upturned; strongly transversely impressed at base. *Elytra* impunctate. *Legs* longer and thinner than usual. Basal joint of front tarsi not quite half their total length, rounded and with a black inner rim.

Length to apex of elytra $1\frac{2}{3}$, of abdomen $2\frac{1}{2}$ mm.

Hab. W. AUSTRALIA: Swan River.

The distinctly notched apex of prothorax (probably confined to the male) renders this species remarkably distinct, its antennae also are larger than in any other species here recorded. The clothing of the head somewhat obscures its sculpture, but this is of a very unusual nature, as the largest excavations are basal instead of median. Seen from behind the head appears to be supplied with five small subconical equidistant tubercles; but of these two are really the points of the produced apices of the prothorax.

HELCOGASTER BASIRUFUS, n. sp.

♂. Black; apical half of head, prothorax (a large transverse subapical blotch black and prosternum tipped in front with black), front tibiae, parts of front femora and tarsi, and two basal joints of antennae reddish-flavous; apex of antennae, four hind knees and parts of middle tarsi obscure testaceous.

Head subelongate; with distinct scattered punctures and with longitudinal and oblique excavations and elevations at the middle phase. Antennae extending to middle legs. *Prothorax* slightly longer than wide, apex very feebly lilobed and base feebly transversely impressed. *Elytra* with a few scattered and indistinct punctures. Basal joint of front *tarsi* less than half their total length, but rather strongly inflated, rounded, and with a black inner rim.

Length to apex of elytra 3, of abdomen 5 mm.

Hab. W. AUSTRALIA: Geraldton (*A. M. Lea*).

The colour of the prothorax is somewhat after the style of *parallelus* (the black patch does not quite extend to the extreme apex or sides, however), but the sculpture of the head is totally different, both from that species and from any other here recorded. In the middle of the head is a longitudinal carina about one third of its total length, between this and each eye is a narrow curved carina and close to each eye another but less distinct one, the spaces between being more or less deeply excavated; of the excavations the largest ones are the lateral; each of these runs to a point at the front end of each eye, but posteriorly widens out so that the two become united; marking the position of their junction is a small impression connecting them with the median ones. Seen from behind the head appears to have three small median subconical tubercles. The two basal joints of antennae are distinctly paler than the following ones, the three next being very dark, the succeeding joints then gradually become paler but the apical joint is darker than the basal ones. In one of the two specimens before me the front tibiae are slightly infuscate in middle.

HELCOGASTER PUNCTIPENNIS, n. sp.

♂. Flavous; apical half of elytra purplish-black, six apical joints of antennae and tip of abdomen black; metasternum more or less infuscate.

Head with scattered punctures and at base transversely strigose; concave but not largely excavated between eyes; in front with a large tubercle. Antennae rather long and thin, but not extending to apex of elytra. *Prothorax* longer than wide, base considerably narrower than apex and shallowly transversely impressed; a few small punctures at the sides in front. *Elytra* long; densely covered with rather large, sharply defined punctures. Basal joint of front *tarsi* about half their total length and with a dark inner rim.

Length to apex of elytra $2\frac{1}{2}$, of abdomen $3\frac{3}{4}$ mm.

♀. Differs in being larger; head with more distinct punctures, without tubercle and absolutely bifoveate in front; and the front tarsi simple.

Hab. QUEENSLAND: Cairns (types in Macleay Museum).

Placed in *Helcogaster* on account of the concave head and long antennae, but the strongly punctured elytra (which alone readily distinguishes it from all recorded species of *Helcogaster*) would seem to imply that it belongs to *Carphurus*). The apical tubercle on the head of the male from above appears to be obtuse, ovate, and with a large median puncture; from the sides it appears as a narrow abrupt ridge, and from behind as a small acute tubercle.

HELCOGASTER TUBERCULIFRONS, n. sp. (*Fig.* 10.)

♂. Reddish-flavous. Seven terminal joints of antennae, apical three-fifths of elytra and two apical segments of abdomen black; metasternum and two apical joints of tarsi infuscate.

Head with small punctures and at base transversely strigose; feebly impressed or flattened between eyes and on each side in front; with a large trilobed tubercle. Antennae rather long and thin, but not passing hind coxae. *Prothorax* slightly longer than wide, towards base with a large shallow impression, base distinctly narrower than apex. *Elytra* elongate; almost impunctate. Basal joint of front *tarsi* with a black inner rim.

Length to apex of elytra $2\frac{1}{4}$, of abdomen $3\frac{1}{4}$ mm.

Hab. N. S. WALES: Illawarra (*H. J. Carter*).

From above the cephalic tubercle appears to be trilobed, the frontal lobe with the apex almost between antennae, the hinder lobes almost exactly midway between the eyes, the hinder lobes are connected with the frontal one but not with each other; from behind the head appears to have a small bilobed median tubercle, from the sides a

narrow median abruptly terminated ridge. In colour it resembles *apicalis*, *rhyticephalus* and *punctipennis*, from the latter distinguished by the almost impunctate elytra and from all three by the differently sculptured head.

HELCOGASTER RHYTICEPHALUS, n. sp.

♂. Flavous or reddish-flavous; a subtriangular basal spot on head, apical third (or fourth) of elytra, scutellum, metasternum, abdomen (all the segments more or less red at apex and sides) coxae, base of femora, two apical joints of tarsi and seven terminal joints of antennae black or blackish.

Head with scattered punctures, at base transversely strigose; largely excavated between eyes, the excavation bisinuate posteriorly, the two lobes separated by a projecting median tubercle, middle near apex with a large concave tubercle. Antennae thin, almost extending to hind legs. *Prothorax* slightly longer than wide, moderately strongly impressed at base. *Elytra* almost impunctate. Basal joint of front *tarsi* comparatively short, with a black inner rim.

Length to apex of elytra $2\frac{1}{4}$, of abdomen 4 mm.

♀. Differs in being larger, the head with more numerous and evenly distributed punctures, with a flattened space in front, which is marked at the sides and posteriorly by a curved impression; the eyes are smaller, placed nearer the front and the front tarsi are simple.

Hab. N. S. WALES (Macleay Museum): Sydney (*H. J. Carter*), Bulli (*A. M. Lea*).

The very largely and peculiarly excavated head of the male very readily distinguishes it from all those species having somewhat similar colours. The excavation occupies the entire space between the eyes, and about one half of the length of the head; the frontal tubercle is unusually large and posteriorly is continued as a process which overhangs the excavation and almost meets the median projecting tubercle, the latter is rendered more distinct by being tipped with black and with black pubescence. From behind the head appears to be composed of three large lobes, the median being composed of the two tubercles and the lateral bounded externally by the eyes. The dark parts of the femora vary in extent being sometimes noticeable at the extreme base only, whilst at other times they leave but little more than the knees reddish. The abdomen might be regarded as red with each of the segments clouded with black. The dark apical portion of

the elytra varies in extent and although usually is not always sharply defined.

HELCOGASTER SULCICEPS, n. sp.

♂. Flavous; scutellum, elytra (shoulders and part of the sides behind them excepted), metasternum, abdomen and from six to eight terminal joints of antennae black or blackish; apical joints of tarsi slightly infuscate.

Head with three longitudinal impressions between eyes and at base; with a distinct median tubercle. Antennae scarcely passing middle coxae, some of the joints feebly transverse. *Prothorax* about as long as the width at apex, which is considerably wider than base; strongly impressed at base. *Elytra* impunctate. Basal joint of front *tarsi* comparatively short, with a black inner rim.

Length to apex of elytra 2, of abdomen 3 mm.

Hab. N. S. WALES (type in Macleay Museum).

Almost in the exact middle of the head is a raised tubercle, seen from the sides this appears as a flattened ridge, but which is produced acutely backwards; immediately behind the tubercle is a comparatively shallow impression which is continuous to the base, its sides bounded by obtuse ridges; between each of these and the eye is a deep, curved, wide impression, which is continued to just in front of the eye. From behind the head appears flat, with a distinctly elevated median tubercle, which is flat topped and slightly produced on each side. In some lights and from certain directions the head appears to have five impressions instead of three, but this appearance is deceptive. The pale markings at the sides occupy about one-third of the length of the elytra, but although very distinct at the shoulders are not sharply defined behind. The elytra are much as in some of the varieties of *varius*, but the head and legs are differently coloured and the sculpture of the head is very different to that of any other species here recorded. *C. lacsifrons* (which is possibly a *Helcogaster*) may be allied but its head is differently sculptured and its abdomen has the terminal segments pale.

HELCOGASTER SIMPLICICEPS, n. sp.

♂. Reddish-flavous; scutellum, elytra (a large patch on each shoulder excepted), metasternum, abdomen, parts of four hind coxae,

and apical half of antennae black ; intermediate joints of the latter and apical joints of tarsi more or less infuscate.

Head without excavations ; slightly flattened and with very distinct punctures between eyes. Antennae thin, almost extending to hind coxae. *Prothorax* elongate, strongly impressed at base. *Elytra* almost impunctate. Basal of joint *tarsi* moderately long, slightly rounded and with a black inner rim.

Length to apex of elytra $1\frac{3}{4}$, of abdomen 3 mm.

Hab. N. S. Wales : Gosford (*A. M. Lea*), Kurrajong (Macleay Museum).

The simple head of the male (in shape much as that of *obliquiceps*) readily distinguishes it from most species of the genus ; the elytra are coloured much as in some of the varieties of *varius*. The colours much resemble those of the preceding species except that a greater space in each shoulder is pale, but in that species the head is largely excavated.

A specimen (evidently the female) differs from the two males before me in having the head smaller, more convex and with smaller and sparser punctures ; its elytra also have their basal marking larger and continuous across the suture.

Helcogaster bilobus, n. sp.

♂. Black ; apical half of upper and the entire lower surface of head, prothorax, shoulders and a short space behind them, knees (largely), base of tarsi, and basal joints of antennae, flavous or reddish-flavous.

Head distinctly and almost regularly punctate, base transversely strigose, concave but not largely excavated between eyes and without frontal tubercle. Antennae long and thin, almost extending to hind coxae. *Prothorax* moderately elongate, strongly impressed at base. *Elytra* with sparse and very indistinct punctures. Basal joint of front *tarsi* comparatively small but with a black inner rim.

Length to apex of elytra $2\frac{1}{2}$, of abdomen 4 mm.

♀. Differs in being larger, the head more convex, with a scarcely traceable median impression the eyes smaller, more to the front and the front tarsi simple.

Hab. N. S. Wales : Blue Mountains (*E. W. Ferguson*), Mount Victoria, National Park (*A. M. Lea*) ; Victoria : S. Wandin, Monbulk (— *Jarvis*).

The head of the male is not so simple as in *simpliciceps*

and *obliquiceps* but is much less excavated than usual, the concave portion has a trisinuate outline posteriorly; seen from behind it appears to be in two distinct lobes and no tubercles appear (nor in fact are there any such). The strigosities are more distinct at the sides than elsewhere. Although at first sight apparently a variety of *varius* the shape of the head of the male is so totally different as to render the two species easily separable.

HELCOGASTER MACULICEPS, n. sp. (*Fig.* 11.)

♂. Flavous or reddish-flavous; a spot in middle of base of head, scutellum, elytra (except at base and the sides to beyond the middle), metasternum, abdomen (to a variable extent) and apical two-thirds of antennae, black or blackish.

Head with basal half distinctly punctate and (especially at the sides) transversely strigose; largely excavated between eyes, the excavation trisinuate posteriorly, the median sinus deeper and wider than the lateral; middle of excavation with a small obtuse tubercle, front with a large concave tubercle. Antennae long, but not very thin, almost touching hind coxae. *Prothorax* longer than wide, rather widely and shallowly impressed towards base. *Elytra* almost impunctate. Basal joint of front *tarsi* about one-third of their total length, with an inner black rim.

Length to apex of elytra $2\frac{3}{4}$, of abdomen $4\frac{1}{2}$ mm.

♀. Differs in having the head less transverse, the eyes smaller and more frontal in position, a semicircular impression in front, the antennae shorter and thinner, the prothorax shorter and the front tarsi simple.

Hab. N. S. WALES: National Park, Bulli (*A. M. Lea*).

The black spot on the head is slightly variable in size, but apart from this is quite constant and distinct in both sexes, so that the female is more distinct than usual in the species and varieties having similarly coloured elytra. The legs (except for a slight infuscation of the tarsi) are frequently almost entirely pale, but often have the femora (to a variable extent) dark at the base, and occasionally the tibiae are infuscate in the middle. In the female the head often has a black patch on its lower surface. The abdomen varies from being almost entirely dark to dark only along the middle, and both upper and lower surfaces are variable. In colour of elytra it is much like the typical form of *varius*, but (apart from colour of head and

legs) the excavation of the head of male with a suddenly elevated tubercle in its middle; and its median posterior sinus very wide, and the lateral ones indistinct; seen from both behind and the sides also it appears very different. The head is nearer to that of *fuscitarsis* than any here recorded, but is not the same, and with the elytra, is differently coloured; the prothorax also is decidedly longer. Seen from behind the head appears concave in the middle, but on raising the point of view the median tubercle (which is flat-topped) appears, at a slightly higher elevation a small tubercle appears on each ridge of it; these being really the tips of the frontal tubercle, which from in front is seen to be of semilunar shape.

HELCOGASTER FOVEICORNIS, n. sp. (*Figs.* 78, 79.)

♂. Reddish-flavous; basal half of upper surface of head, metasternum, parts of antennae, of tarsi, and of four hind tibiae, more or less infuscate; elytra and abdomen deep black.

Head wider than usual; very indistinctly punctate; moderately convex, with a feeble longitudinal impression in middle and a feeble one on each side of apex. Antennae long, 1st joint (except at base) very stout, its outer apex foveate, 2nd much smaller than 1st, very narrow at base and then suddenly inflated on one side, 3rd and 4th comparatively stout, the others gradually decreasing in width. *Prothorax* as long as the width at apex, apex considerably wider than base; with a strong basal impression. *Elytra* impunctate. Basal joint of front *tarsi* about half their total length, with the inner margin strongly rounded and black rimmed.

Length to apex of elytra 2, of abdomen 3 mm.

Hab. N. S. WALES: National Park (*A. M. Lea*).

Readily distinguished from all the species here recorded by the basal joints of antennae, which in appearance much resemble those of the males of certain species of *Laius*. There are four males before me, of these one has the apical half of the antennae almost black, in another the apical third is moderately infuscate, whilst in the two others the apical joints are but little darker than the others. In two of the specimens the basal joint has a dark spot. The scutellum is pale, an unusual feature in a species having the elytra entirely dark.

HELCOGASTER INSULARIS, n. sp.

♂. Deep black, elytra with a slight bluish or greenish gloss;

prothorax reddish; parts of three basal joints of antennae and of mandibles obscure testaceous.

Head densely punctate, at base and sides transversely, in front longitudinally strigose; largely excavated between eyes the excavation irregularly bilobed, with posteriorly a bi-sinuate outline, and an acute projecting median tubercle. Antennae extending to apex of elytra, more strongly serrate than usual. *Prothorax* not much longer than wide, strongly impressed at base. *Elytra* with shallow, rugose, indistinct punctures. Basal joint of front *tarsi* strongly rounded and about half their total length.

Length to apex of elytra 3, of abdomen 5 mm.

♀. Differs in being larger; the head longer, with a shallow (but for the sex rather deep) impression between the eyes, the impression very irregular in front, the antennae shorter and thinner, with the serrations less strongly pronounced; prothorax slightly transverse elytra larger and the front tarsi simple.

Hab. TASMANIA (*Aug. Simson*): Frankford, Huon River, Stonor, Mount Wellington (*A. M. Lea*), Hobart (*H. J. Carter*).

In the male the hind edge of the cephalic excavation is not emarginate in the middle but has a strong projecting lobe, a character at once distinguishing it from most of the species here recorded. In *concaviceps* the excavation is slightly lobed in the middle but the lobe scarcely interferes with the general sweep of the excavation, and the head when seen from behind appears concave, whilst in the present species it appears convex; *concaviceps* is also a shorter and wider species, with shorter and less serrate antennae and legs not entirely black. The excavation is very irregular, and from some directions its posterior margin appears to be quadrisinuate, this appearance being due to a feeble elevation between the tubercles and each eye; the frontal tubercle is so concave as to be practically absent, but its sides are marked by acute ridges which slightly converge posteriorly; between the tips of these ridges is an acutely raised carina. Seen from the sides the head appears to have a conicle tubercle, which is deeply cleft in the middle. From behind, as the point of view is raised, one, three, or five small and obtuse elevations appear. The elytra are rather densely punctate, but the punctures are nowhere sharply defined, and in fact are so rugose that they can scarcely be regarded as true punctures at all. The front tibiae are occasionally obscurely diluted with testaceous.

The impressions on the head of the female are slightly variable and on some specimens appear as a shallow impression on each side between the eyes, with several smaller ones or small obsolete foveae in front.

This and all the following species so strongly resemble each other in colour of prothorax, elytra and abdomen, and generally of head, antennae and legs, that practically the only reliable feature on which to differentiate them is the sculpture of the head of the male. The previously described *fuscitarsis*, *brachypterus* and *carinaticeps* and one form of *varius* are also similarly coloured, whilst *concaviceps* is somewhat similar and *major* might be regarded as just outside of the group. I have females of many other series belonging to the group, and probably of some of those of which only the males are now described.

Helcogaster T-tuberculatus, n. sp. (*Fig.* 12.)

♂. Black; elytra with a slight bluish or greenish gloss; apical half of upper and the whole lower surface of head, prothorax, and three basal joints of antennae reddish-flavous, knees and 3rd and 4th joints of antennae obscure testaceous.

Head distinctly punctate, base transversely strigose; largely excavated between eyes, the excavation posteriorly trisinuate; in middle of excavation a suddenly raised flat-topped tubercle, on each side in front of this to the apex a narrow acute ridge. Antennae not extending to hind legs. *Prothorax* longer than wide, shallowly impressed at base. *Elytra* almost impunctate. Basal joint of front *tarsi* moderately long, rounded and with a black inner rim.

Length to apex of elytra $3\frac{1}{2}$, of abdomen $5\frac{1}{2}$ mm.

Hab. N. S. Wales: Jenolan (*A. M. Lea*).

Seen from behind with five elevations on the head as in *varius*, but the median one of different shape, being narrow at its base and at the top widened so as to somewhat resemble the letter T, it is also decidedly elevated above the others. *Fuscitarsis* (which from some directions appears to have the head similarly sculptured) when seen from behind appears to have but one tubercle on the head, and in addition has the legs paler and the prothorax shorter. The excavations are closed posteriorly but open in front; the frontal tubercle (except for the ridges marking its sides) is entirely absent. There are two males before me.

HELCOGASTER TROPICUS, n. sp.

♂. Colour as in the preceding species except that rather less of the base of the head is black, that its under surface is somewhat obscure, and that more of the four front tibiae are diluted with testaceous. The head is somewhat similarly sculptured but the median sinus is much wider the median elevation shorter (so as not to appear elevated above the rest when the head is viewed from behind) and obtusely conical, the frontal tubercle present (but still very concave), and its sides marked by subtubercular elevations instead of ridges. The antennae are somewhat thinner and the front tarsi are stouter.

Length to apex of elytra 3, of abdomen 5 mm.

Hab. QUEENSLAND: Cairns (type in Macleay Museum).

Seen from behind the head appears to have a small tubercle close to each eye and an obtuse median one, on making the range of view more oblique the median tubercle appears to divide into three—a rounded one, on each side of which is a small subconical one. The median sinus of the head occupies about two-thirds of the space between the eyes, whilst in the preceding species it occupies only about half the space. There are two males before me.

HELCOGASTER NIGRICEPS, n. sp.

♂. Deep black, elytra with a bluish gloss; prothorax and two basal joints of antennae reddish-flavous; parts of coxae and trochanters, base of front femora, and the extreme sides of basal segments of abdomen obscure reddish-brown.

Head densely punctate, the sides transversely strigose; largely and deeply excavated between eyes, in middle with a small subconical tubercle. Antennae not very long, just passing middle coxae. *Prothorax* scarcely longer than wide, sides strongly rounded, base feebly impressed. *Elytra* more dilated towards apex than usual; with small but moderately distinct punctures. Basal joint of front *tarsi* about half their total length, rounded, and with a deep black inner rim.

Length to apex of elytra $2\frac{1}{2}$, of abdomen $3\frac{1}{2}$ mm.

Hab. N. S. WALES: Nowra (type in Macleay Museum).

The entirely dark head distinguishes from *T-tuberculatus*, *tropicus*, and the others having the cephalic impression trisinuate posteriorly; the median elevation is shaped somewhat as in *T-tuberculatus* but is below instead of

above the general level, whilst the outline of the body resembles that of *concaviceps*. The excavation is nowhere open, and its whole outline is quadrisinuate. The median frontal sinus is narrower than the posterior one, in consequence the lateral ones are more apical than basal; the median basal sinus in fact is so wide that the base might be quite fairly regarded as unisinuate. From behind from one point of view there appear to be three small tubercles below the level of the non-excavated portion. From the sides there appears to be a small tubercle close to each eye. The elytral punctures are small, not very dense, and many of them are rugose, but from certain directions a few of them are sufficiently clear.

HELCOGASTER DECIPIENS, n. sp.

♂. Deep black, elytra with a slight greenish gloss; a subtriangular apical portion of head, prothorax, and two basal joints of antennae reddish-flavous; extreme base of tibiae testaceous.

Head with rather small punctures in places; base and sides more distinctly strigose than usual; largely excavated between eyes, the excavation trisinuate posteriorly; frontal tubercle large and concave, its sides in front thickened and subtuberculate, its base in middle marked by an acute conical tubercle. Antennae (and especially the apical joint) stouter than usual, terminated half-way between middle and hind coxae. *Prothorax* about as long as wide, apex very feebly impressed. *Elytra* almost impunctate. Basal joint of front *tarsi* not very large, but strongly rounded.

Length to apex of elytra 3, of abdomen 5 mm.

Hab. TASMANIA: Swansea (*A. M. Lea*).

The cephalic excavations, though large, are rather smaller than usual. The median sinus wide and without a projecting median lobe, elytra smoother and front of head pale readily distinguishes it from *insularis* (the common Tasmanian species) to which in colour and general appearance it bears a striking resemblance. The width alone of the median sinus at once distinguishes it from *varius*, although when viewed from behind the head appears to have five tubercles, but of these the median one is in a different position. From the others having the base of the excavation trisinuate it can be distinguished by the median tubercle (which is very distinct from the sides) not rising from its own base but forming part of the frontal elevation. In the unique specimen before me the extreme

sides of the elytra are almost white, but I attach no importance to this.

HELCOGASTER STRIGICEPS, n. sp.

♂. Deep black; elytra with a slight bluish gloss; prothorax reddish-flavous; four basal joints of antennae (wholly or in part) and extreme base of tibiae, testaceous.

Head with less prominent eyes than usual; densely strigose both obliquely and longitudinally; irregularly excavated on apical half. Antennae rather short, scarcely passing middle coxae. *Prothorax* slightly transverse, not impressed at base. *Elytra* very feebly punctate. Basal joint of front *tarsi* rather small, but strongly rounded and with a black inner rim.

Length to apex of elytra 2¼, of abdomen 4 mm.

Hab. N. S. WALES: Mount Victoria (*A. M. Lea*).

The cephalic excavations are very different to those of any species here recorded; they are not all more or less connected as is usually the case, but there are two comparatively small foveae forming a median excavation, the two combined occupying about half of the width between eyes, but only about one-fourth of the length of head; between them and each eye is a rather shallow, curved groove, completely margined all round (except at the extreme front) and the two separated in front by a rather wide median elevation the hind edge of which divides the median excavation into the two fovea. Seen from behind the head appears to have three slight, rounded, distant spaces, scarcely elevated above the general level; whilst from the sides it appears to be flattened. The strigosities of the head are denser than usual, and, instead of being transverse, are longitudinal at the base.

A specimen which is possibly the female (it was beaten from the same bush as the male) has the head feebly impressed in front, transversely strigose at the base, prothorax transversely impressed at the base and front tarsi simple. In colours and general appearance it exactly resembles the male but as its antennae are distinctly longer I am somewhat doubtful as to the two specimens being really correctly mated.

HELCOGASTER HELMSI, n. sp. (*Figs.* 13, 14.)

♂. Deep black, elytra with a decided bluish or greenish gloss; prothorax and three basal joints of antennae reddish-flavous.

Head rather densely and irregularly punctate ; concave but not deeply excavated between eyes ; with a large frontal tubercle, which in front has two small tubercles and behind a rather larger and acute one. Antennae terminated half-way between middle and hind coxae. *Prothorax* about as long as wide, base transversely impressed. *Elytra* with minute, scattered punctures. Basal joint of front *tarsi* rather large and rounded.

Length to apex of elytra 3, of abdomen 5 mm.

♀. Differs in having the head longer, with the eyes smaller and more to the front, convex between eyes, with an obtuse simple tubercle in the same position as the male ; prothorax slightly transverse front tarsi simple.

Hab. N. S. Wales : Mount Kosciusko, 5,700–6,000 feet (*R. Helms*).

There are eight specimens before me, but only one of these is a male. Its head is rather roughly sculptured but nowhere deeply excavated or foveate ; in front there is a large almost pear-shaped tubercle, which from certain directions appears to be simple, but there are really three smaller conical tubercles on it and these can be seen quite distinctly when the head is viewed from behind or from the sides. There are remains of the trisinuate outline that is so distinct in many species, but this sinuous appearance is caused more by two very obtuse elevations than by the excavations.

Helcogaster pulchripes, n. sp.

♂. Black, elytra with or without a slight bluish or greenish gloss, head (basal half of upper surface excepted) prothorax, four front femora and tibiae, and base of hind tibiae reddish-flavous; apical half of antennae more or less infuscate.

Head wider than usual ; rather distinctly punctate and at the sides feebly strigose ; a rather shallow impression on each side in front. Antennae not passing middle coxae. *Prothorax* slightly transverse, feebly impressed at base. *Elytra* densely and minutely punctate. Basal joint of front *tarsi* not quite half their length, strongly rounded and with a black inner rim.

Length to apex of elytra 2½, of abdomen 4 mm.

♀. Differs in having the head slightly longer, the frontal impressions very shallow, the eyes slightly smaller and more to the front and the front tarsi simple.

Hab. W. Australia : Geraldton (*A. M. Lea*).

The feebly sculptured head of the male is much as in many females of the genus, and in fact but little different from its own female, but the basal joint of the front tarsi is unmistakably masculine. Of the other species having the head almost simple and the prothorax pale *fovicornis* has the basal joint of antennae strongly inflated, and *simplici-ceps* has the basal joint of front tarsi much smaller and the head legs and elytra differently coloured. The elytral punctures are somewhat rugose but sufficiently distinct, they are, however, very much smaller than in *punctipennis*, but, with that exception, are more distinct than in any other species here recorded. In the female the front femora have sometimes half their base dark, whilst the middle femora are almost entirely dark, but in the males the four front femora are usually entirely pale, although they are occasionally tipped at the base with black. In both cases the amount of flavous at the base of the hind tibiae is variable in extent. In the female the lower surface of the head is occasionally blackish.

HELCOGASTER SPINICOLLIS, n. sp. (*Fig.* 97.)

♂. Black; prothorax, shoulders, two basal joints of antennae, front knees and middle femora red or flavous.

Head large, transverse, deeply excavated. Antennae comparatively short and stout, many of the joints transverse. *Prothorax* transverse, sides rounded, base truncate, apex rather largely bilobed, with short acute projection from between the lobes. *Elytra* almost impunctate. Basal joint of front *tarsi* about half their total length and with black inner rim.

Length to apex of elytra 1½, of abdomen 2¼ mm.

Hab. N. S. WALES: Bulli (*A. M. Lea*).

In the type the shoulders are much paler than the prothorax, but I attach no importance to this. The head is deeply excavated on its basal half, the excavation being feebly bilobed posteriorly and irregular in front; across the middle of the excavation is an isolated carina. Seen from the front the middle of the front of the head appears to consist of a slightly concave, heart-shaped and rather coarsely punctured space; but the whole sculpture of the head is somewhat obscured by its clothing. It is at once distinguished from all the other known species by the apex of its prothorax.

HELCOGASTER PUNCTILOBUS, n. sp.

♂. Flavous, in places reddish ; apical two-thirds of elytra and extreme tip of abdomen, black ; apical two-thirds of antennae and metasternum infuscate.

Head transverse, not largely excavated but divided into two large feebly convex lobes, each of which is densely and rather coarsely punctured, the space between depressed, shining and impunctate. Antennae long and thin. *Prothorax* rather feebly transverse ; apex wider than base. *Elytra* rather long, each separately rounded at apex, almost impunctate. Basal joint of front *tarsi* about half their total length, with a rather wide black inner rim.

Length to apex of elytra 2, of abdomen 3 mm.

♀. Differs in having the head smooth, almost impunctate and less transverse, with smaller eyes and simple tarsi.

Hab. N. S. WALES : National Park, Bulli (*A. M. Lea*).

In three females the metasternum is darker than in the male and the abdomen varies—in one being almost entirely black, in another only the two apical segments are dark, whilst in the third it is slightly infuscate below (except for the two apical segments) and almost entirely dark above. In the male the prothorax is strongly ridged (not carinate) along the middle, probably naturally so, but possibly owing to irregular contraction.

In appearance the species is close to *tuberculifrons* and the following, but the sculpture of the head of the male is very different. In the table* it would have been placed next to *bilobus*, from which it is at once distinguished by its colour; the sculpture of the head, however, is also different.

HELCOGASTER BACCHANALIS, n. sp.

♂. Flavous ; base of head and apical two-thirds of elytra black, metasternum, apex of abdomen and apical half of antennae infuscate.

Head transverse, largely excavated between the eyes, these larger than usual. Antennae long and rather thin. *Prothorax* transverse, apex much wider than base. *Elytra* rather long and dilated posteriorly ; with small, indistinct, rugulose punctures. Basal joint of front *tarsi* less than half their total length and with a black inner rim.

---

* This and the following species were described after the table was prepared.

Length to apex of elytra 2½, of abdomen 4 mm.

♀. Differs in having the head with only two feeble impressions in front, and a greater portion of its area black.

Hab. N.S. Wales: Richmond River (*A. M. Lea*).

The two specimens before me were previously identified by me as the *Carphurus apicalis* of Macleay, with the description of which they closely agree, but the head of the male is very differently sculptured from that of the male of this species.* The impressions on the head of the male of this species are trilobed posteriorly, the lateral channels are longer, but not quite so wide as the median one, the hind ends of all are level, but the front end of the median one is almost exactly level with the middle of each eye, and is there obscurely connected with the lateral ones; in the middle of its front portion is a short suddenly elevated carina (this from some directions causes the head to appear as if it had four longitudinal channels instead of only three), the carina appearing as a prolongation of a frontal raised space, the whole being shaped like a flask, of which the carina is the neck, the resemblance to a flask being most distinct from the back and from the sides obliquely. Seen from the sides, the head appears to have a longitudinal ridge, interrupted at its middle.

In the table it would have been placed next to *fuscitarsis*, but the head is differently sculptured and the elytra differently coloured.

SUBFAMILY MELYRIDES.

Genus Dasytes,† Payk., Faun. Suec., II, p. 156; Lacord., Gen. Coleop., IV, p. 400.

This genus is of world-wide distribution, but hitherto only four species belonging to it have been recorded from Australia, probably on account of the small size and obscure colours of most of the species. I do not know any foreign members of the genus, but the Australian species readily fall into two sections (or perhaps genera).

1. Of comparatively large size, flat bodied, with long hair and with the prosternum foveate.

2. Of very small size, rather strongly convex and densely

* See comments under *apicalis*.

† For full synonymy of this genus see Lacordaire.

and finely pubescent; frequently also with a metallic gloss, prosternum not foveate.

To the first section belongs the species I have redescribed as *fuscipennis*, and in my opinion it belongs to a different genus to all the other species here noted (with the possible exception of *nigricans*) and which belong to the second section.

The pubescence of the members of the second section appears to be easily abraded, the antennae usually extend (when drawn backwards *over* the prothorax) to or slightly beyond the scutellum and in most of these species the individual joints are shaped much as they are in *squirescnsis*. The abdomen of the species of this section also often appears to have the hinder edges of the segments serrated, but this appearance is really due to the pubescence being matted together.

The species, with the exception of *nigricans*, which is commented on below, may be tabulated as follows:—

A. Prothorax with long setose hair . .	*fuscipennis*, Hope.
AA. Prothorax pubescent.	
B. Elytra with semi-upright hairs in addition to pubescence.	
a. Elytra with numerous subgranular elevations	*granulipennis*, n. sp.
aa. Elytra with punctures only .	*squiresensis*, Blackb.
BB. Elytra pubescent only.	
C. Prothorax with comparatively coarse punctures.	
b. Punctures all sharply defined	*sobrinus*, n. sp.
bb. Punctures more or less rugose	*abundans*, n. sp.
CC. Prothorax (at least in middle) with small or very small punctures.	
D. Femora partly pale . .	*bourgeoisi*, n. sp.
DD. Femora entirely dark.	
E. Prothorax feebly transversely impressed near base.	
c. Impression continuous	*australiae*, n. sp.
cc. Impression interrupted in middle . .	*evanidus*, n. sp.
EE. Prothorax not so impressed.	

F. Prothorax as wide as elytra . . .	*amplicollis*, n. sp.
FF. Prothorax narrower than elytra . .	
G. Pubescence dense comparatively long and almost pure white . .	*helmsi*, Blackb.
GG. Pubescence sparser, shorter, and darker.	
H. Prothoracic and elytral punctures very small . .	*corticarioides*, n. sp.
HH. These punctures small but considerably larger than in *corticarioides* .	*wiburdi*, n. sp.

DASYTES FUSCIPENNIS, Hope, Trans. Ent. Soc. Lond., 1845, p. 105.

Dark reddish or piceous, brown, sometimes almost black ; appendages usually paler. Upper surface densely clothed with long blackish hair or setae, denser and shorter on elytra than elsewhere, tibiae densely setose, the rest of the legs and the under surface rather sparsely pubescent.

Head transverse, somewhat flattened ; with large shallow punctures, moderately dense between eyes, absent elsewhere. Antennae extending to scutellum ; 1st joint large, 2nd longer than 3rd, 4th–8th small and globular, 9th–10th larger and globular ; 11th pyriform. Eyes large, rather coarsely faceted. *Prothorax* strongly transverse, sides and base margined ; with large shallow punctures. *Scutellum* strongly transverse ; with distinct punctures. *Elytra* not much wider than prothorax, parallel-sided to near apex ; with close set rows (often subgeminate in appearance) of rather small, but distinct punctures.

Length $3\frac{1}{2}$–$6\frac{1}{2}$ mm.

Hab. QUEENSLAND: Brisbane, Dawson River; N. S. WALES: Forest Reefs, Jenolan, Tamworth, Sydney, Galston, Como, Windsor; VICTORIA: Benalla, Melbourne; TASMANIA: Hobart, Mount Wellington, Launceston; S. AUSTRALIA: Adelaide, Port Lincoln; W. AUSTRALIA: Swan River, Albany, King George's Sound, Mount Barker.

Frequently the sides of the prothorax are paler than its disc; the elytra are sometimes paler than the prothorax, but are often fully as dark; the appendages are usually paler than the head, the prosternum is nearly always paler than the abdomen and the abdomen than the metasternum; but specimens of an almost entirely uniform shade of colour (except that the appendages are slightly paler) are by no means uncommon. The prothorax often has a smooth impunctate median line, or this line may be even subcariniform; in well-kept specimens the long hair usually meets over it. On the prosternum between each coxae and the apical angle is a large fovea, at the bottom of which is a roughly circular flat space (this may be an enormously developed spiracle), there is nothing exactly like it on any other beetle known to me, although there is an approach to it in *Telephorus* and some of the species having exsertile vesicles. The first joint of all the tarsi is distinctly shorter than the second when seen from below, and from above is often quite invisible; the claws are long, thin and simple except for a slight basal swelling.

The insect to my thinking certainly belongs to a different genus to all the species (except *nigricans*) which follow; but as *Dasytes* is a world-wide genus and may include similar forms I have not felt called upon to propose a new genus for its reception.

The original description of *fuscipennis* (as also of *nigricans* described at the same time) consists of exactly twelve words, and is certainly insufficient for the positive identification of any species of the genus. I have described the above species as *fuscipennis*, however, as it is so named in several Australian museums, and a specimen of it has been sent to me as such by the Rev. T. Blackburn. The species is variable and probably the most widely distributed of all the Australian *Malacodermidae*; it may be taken under the bark of various species of Eucalyptus and often at lights at night-time.

Dasytes nigricans, Hope, *l. c.*, p. 105.

The original description of this species is quite useless; it may quite possibly have been founded upon one of the varieties of the above species, but without examination of the type, or of a specimen that had been compared with the type, I would not care to accept the name for any species, even from Adelaide.

Hab. S. Australia: Adelaide.

Dasytes squiresensis, Blackb., T. R. S., S.A., 1892, p. 38.

I have a co-type of this species. Its elytra when viewed from the sides are seen to be covered with numerous short, semi-erect hairs in addition to the pubescence, and its trochanters (in addition to other parts of the legs) are red. The hind angles of its prothorax are strongly rounded.

In the species a variable number of joints of the antennae are pale, but the first is always of a deep glossy black, and in striking contrast to the bright red second joint.

Hab. S. Australia: Mount Squires; W. Australia: Geraldton.

Dasytes helmsi, Blackb., *l. c.*, p. 38.

The original description of this species is very brief, and although sufficient to prevent it from being confounded with the preceding, is too short for its positive identification. Mr. Blackburn, however, has been good enough to give me a specimen (the only one I have seen) of it. This specimen is very densely clothed with almost snowy-white pubescence, the elytra are without semi-upright hairs and are very indistinctly punctate, more on account of the small size of the punctures themselves than through being partially concealed by the clothing, towards the base they are fairly distinct, however. The prothorax is without depressions, is feebly rounded at the base and its entire base is closely applied to the elytra and is of almost exactly their width at base, although distinctly narrower than across their middle.

Hab. S. Australia: Elder Expedition.*

* Exact locality not given.

DASYTES ABUNDANS, n. sp.

Black or blackish-brown, with a dark greenish gloss, more pronounced on the elytra than elsewhere ; basal half of antennae, knees, tibiae tarsi and trochanters more or less obscurely diluted with red. Densely clothed with whitish pubescence.

Head transverse ; with dense and moderately distinct punctures. Antennae extending to scutellum. *Prothorax* transverse, convex throughout, sides strongly rounded ; with dense and rather large but somewhat rugose punctures, smaller in middle than elsewhere ; with a feeble median line. *Elytra* not closely applied to prothorax ; with dense but rather small punctures, becoming smaller posteriorly ; suture very feebly raised on posterior two-thirds.

Length $1\frac{1}{2}$–$2\frac{1}{2}$ mm.

Hab. W. AUSTRALIA : Garden and Rottnest Islands, Swan River, Pinjarrah, Geraldton (*A. M. Lea*).

The reddish parts of the legs are much paler in some specimens than in others, but although varying in degree never seem to vary in extent ; the antennae, however, are sometimes entirely dark ; even on the elytra the greenish gloss is never very bright. On specimens in perfect preservation are to be seen two long hairs on each side of the prothorax and one on each side of the base of the head ; but they all appear to be easily abraded, or at least plastered down so as to be indistinguishable. The prothoracic punctures, though strong are by no means sharply defined. In general appearance it is like *squiresensis*, but is smaller, the prothorax with coarser punctures and the elytra pubescent only. It is an abundant species.

DASYTES BOURGEOISI, n. sp.

Black, with an olive-green gloss ; 2nd–4th joints of antennae and parts of the legs reddish. Moderately densely clothed with pale yellow pubescence.

Head strongly transverse, with scarcely visible punctures, antennae just passing scutellum. *Prothorax* twice as wide as long, convex throughout, sides and base strongly rounded ; punctures small and indistinct. *Elytra* closely applied to prothorax ; with dense and rather small punctures, but of almost equal size throughout ; suture feebly raised on the posterior two-thirds.

Length $2\frac{1}{4}$–$3\frac{1}{4}$ mm.

Hab. TASMANIA : Hobart, Mount Wellington, common on flowers (*A. M. Lea*).

The elytra are much less densely clothed than in the majority of the species, and to the naked eye appear to be rather highly polished ; the clothing is much as in the preceding species, but is sparser and rather darker and there are no lateral hairs. The elytral punctures are about the same size as those on the elytra of that species, but the prothoracic ones are much smaller and the prothorax itself is much wider. The tibiae, tarsi and trochanters are always reddish, and usually the four front femora as well; the deep black basal joint and the antennae is much as in *squiresensis*, to which in size and general appearance it approximates, but the clothing of the elytra at once distinguishes the two species.

I was under the impression that this species possibly belonged to *Dasytiscus*, and sent a specimen to M. Bourgeois for his opinion, he replied as follows: "As to the *Dasytides* these are not to my thinking *Dasytiscus*; they do not show any denticulations at the side of the prothorax and the tarsi are not the same." His figure of *D. transcaspicus*,* however, will give a good general idea as to the appearance of this insect.

DASYTES AUSTRALIAE, n. sp.

Black, with a bronzy or bronzy-green gloss ; parts of the legs piceous-brown or not. Densely clothed with white pubescence.

Head with small indistinct punctures. Antennae rather thin ; passing scutellum for about one-third of their length. *Prothorax* about twice as wide as long, sides strongly rounded, widely and shallowly impressed at base ; densely and minutely punctate. *Elytra* closely applied to prothorax ; with dense almost uniform and rather small punctures, suture nowhere raised.

Length 2¼–3 mm.

Hab. W. AUSTRALIA : Swan River (*A. M. Lea*).

In many respects close to *helmsi*, but the prothorax of different shape at the base and the clothing much sparser, etc. Its very fine prothoracic punctures readily distinguish it from *abundans*. Sometimes the tarsi and four front legs are not quite so dark as the rest of the insect, but they are never distinctly reddish ; the antennae are of uniform darkness throughout. The species is very abundant about the Swan River.

* Ann. Soc. Ent. Fr., 1885, Pl. V, fig. 1.

Three specimens sent to me from Birchip in Victoria by Mr. J. C. Goudie, differ in being longer and stouter, but as I can find no other distinguishing features I prefer to regard them as representing a variety rather than a distinct species.

DASYTES GRANULIPENNIS, n. sp.

Dark metallic bluish-green or greenish-blue; under surface and appendages black. Rather densely clothed with whitish pubescence; the elytra in addition with long more or less upright brownish hairs.

Head with small indistinct punctures; a shallow but distinct impression on each side in front. Antennae thin, passing scutellum for fully one-third of their length. *Prothorax* scarcely twice as wide as long; sides strongly rounded, gently convex throughout; with small punctures on sides becoming very small on disc. *Elytra* closely applied to prothorax; densely punctate, punctures small but of almost equal size throughout; with irregular series of small, shining, sub-granular elevations.

Length 2¼–3 mm.

Hab. TASMANIA (*J. R. Norman*), Hobart, Kempton (*A. M. Lea*).

A narrow species which can be readily identified by the clothing and subgranular appearance of its elytra.

DASYTES SOBRINUS, n. sp.

Reddish-brown, head prothorax and scutellum darker, appendages paler. Densely clothed with very short pubescence; each side of prothorax usually with two long hairs.

Head with clearly defined and comparatively large punctures; with a large shallow impression in front. Antennae thin; just passing scutellum. *Prothorax* not much wider than long, sides not very strongly rounded; with a feebly impressed median line; rather coarsely punctate. *Elytra* closely applied to prothorax, somewhat flattened, suture nowhere raised; punctures at base rather large (but smaller than on prothorax), becoming small posteriorly.

Length 1½–⅓ mm.

Hab. W. AUSTRALIA: Pinjarrah (*A. M. Lea*).

The elytra are darkest at the base, the colour gradually decreasing until at the apex they are only about as dark as the legs; the metasternum is darker than the rest of

the under surface; the femora are usually infuscate in the middle. The general colour is similar to that of many of the *Ptinidae*. In appearance it is somewhat like *abundans*, but is much smaller, the prothorax with coarser punctures and elytra of thinner texture (in *abundans* the elytra are always rigid, but in this species they become distorted after death).

DASYTES EVANIDUS, n. sp.

Blackish; elytra very little paler; knees, tibiae and tarsi dull reddish-brown. Rather densely clothed with short pubescence.

Head with dense indistinct punctures; a large shallow impression in front. Antennae rather thin, just passing scutellum. *Prothorax* not much wider than long; sides moderately rounded, towards base feebly impressed, the impression not continuous across middle; disc with small punctures, becoming larger (but not very large) on sides. *Elytra* closely applied to prothorax, with dense small punctures, becoming smaller posteriorly; suture narrowly raised in posterior half.

Length 1¼ mm.

Hab. W. AUSTRALIA: Pinjarrah (*A. M. Lea*).

The antennae are either entirely dark or with the subbasal joints slightly paler than the others; the elytra are but little paler than the prothorax and at a glance appear to be equally as dark. The species is close to the preceding but smaller (it is the smallest of the genus known to me), prothorax with smaller punctures and elytra more convex, etc.

DASYTES WIBURDI, n. sp.

Deep black, the upper surface with a slight greenish or coppery gloss. Densely clothed with whitish pubescence.

Head with dense and fairly distinct punctures. Antennae stout, just extending to scutellum. *Prothorax* almost twice as wide as long, gently convex throughout, sides strongly rounded, densely and minutely punctate the punctures larger on sides than disc. *Elytra* closely applied to prothorax, widest about the middle, suture narrowly raised on posterior half; densely punctate, towards base punctures larger than on prothorax, but becoming smaller posteriorly.

Length 1¾–2 mm.

Hab. N. S. WALES: Jenolan (*J. C. Wiburd*).

The pubescence is much like that of *helmsi*, but is distinctly shorter and not of the almost snowy whiteness of that species. In appearance it is close to the following species, but is slightly larger and with more distinct punctures on both prothorax and elytra; in shape it is intermediate between that species and *abundans*.

DASYTES CORTICARIOIDES, n. sp.

Black; the elytra sometimes not quite so dark. Densely clothed with short, whitish pubescence.

Head minutely punctate; gently convex. Antennae just passing scutellum. *Prothorax* twice as wide as long, sides strongly rounded, gently convex throughout; densely and minutely punctate. *Elytra* rubovate, closely applied to prothorax, suture narrowly raised on posterior two-thirds; densely and minute punctate, at base punctures rather larger than on prothorax.

Length $1\frac{1}{2}$–$1\frac{3}{4}$ mm.

Hab. W. AUSTRALIA: Rottnest Island, Darling Ranges, Swan River; N. S. WALES: Sydney (*A. M. Lea*).

Of the short robust form of *helmsi*, but much smaller, pubescence sparser and darker, etc. The elytra are often quite as dark as the rest of the body, but frequently are of a very dark brown only. Except as to its colour it is not unlike many species of *Corticaria*. I cannot find any distinguishing features between the eastern and western forms.

DASYTES AMPLICOLLIS, n. sp.

Black, the upper surface with a slight greenish gloss. Densely clothed with short whitish pubescence.

Head indistinctly punctate, gently convex. Antennae short, not extending to scutellum. *Prothorax* scarcely twice as wide as long; strongly convex; sides strongly rounded; with minute punctures in middle, becoming clearly defined and comparatively large on sides. *Elytra* rather closely applied to prothorax, but nowhere wider than the greatest width of that segment; with dense and rather minute punctures; suture scarcely visibly raised posteriorly.

Length $1\frac{1}{2}$ mm.

Hab. W. AUSTRALIA: Swan River (*A. M. Lea*).

Of the size and somewhat after the build of the preceding species, but the prothorax considerably larger in proportion to the elytra and with larger punctures, especially at the sides.

SPECIES OF DOUBTFUL POSITION.

LYCUS (CHARACTUS) AUSTRALIS, Boisd., Voy. Astr., II, p. 119; Dej., Cat., 3 ed., p. 112; Wat., Trans. Ent. Soc. Lond., 1877, p. 74; Masters (*Calopteron*), Cat. Col. Aust., No. 3364.

"Supra croceus; thorace macula media nigra; elytris subparallelis sulcatis; subtus antennisque nigris."

Hab. AUSTRALIA.

Of the species here recorded this description fits *Metriorrhynchus nigripes, lateralis, marginicollis, irregularis* and *Trichalus ampliatus*; without additional particulars therefore it would be dangerous to identify any species as *australis.*

LYCUS OCHRACEUS, Dalm., Sch. Syn. Ins., App., p. 31; Boisd., Voy. Astr., II, p. 122; Wat., Trans. Ent. Soc. Lond., 1877, p. 85; Masters (*Metriorrhynchus*), Cat., Sp. No. 3354.

"Subtus ater, supra ochraceus; thorace disco nigro; elytris stratis, reticulato-punctatis.

"Long 6 lin.

"Elytra ad scutellum infuscata."

Hab. AUSTRALIA.

There are about a dozen species before me, any one of which might be *ochraceus,* as they all agree with the above description.

PYROCOELIA BICOLOR, Fabr. (*Lampyris*), Syst. El., II, p. 100 (1801); Boisd., Voy. Astr., II, p. 129 (1835); Mots. (*Cratomorphus* Mots.), Etud. Ent., p. 34 (1853); Gorham, Trans. Ent. Soc. Lond. (1880), p. 91; E. Oliv., Notes Leyd. Mus., VIII, p. 199 (1886); Olliff, P. L. S., N.S.W. (1889), p. 646.

"Supra testacea, subtus atra, abdominis segmentis duobus penultimis striga abbreviata, albissima."

Hab. N. S. WALES?

This description may have been drawn up from a pallid specimen of *Luciola flavicollis,* or from a species of *Atyphella.*

CANTHARIS AUSTRALIS, Boisd., Voy. Astr., II, p. 133; Dej., Cat., 3 ed., p. 120; Masters (*Telephorus*), Cat., Sp. No. 3379.

"Minuta, nigra, thorace croceo; subtus nigra, pedibus thoraceque luteis."

Hab. AUSTRALIA.

This may be a *Telephorus*, but it is more likely to be a *Heteromastix*, or even a *Hypattalus*; but it is, however, quite certain that it would be absurd to attach the name to any species without additional particulars to the above.

HELIOTIS * HOPEI, Cast., Hist. Nat., I, p. 257.

As in the description of this insect no indications are given as to its shape, and as I have not seen the generic description, I am not even able to refer it to its subfamily. The genus is not mentioned by Lacordaire, although long antecedent to his work.

Hab. W. AUSTRALIA: Swan River.

OEDEMERIDAE.

AGASMA SEMICRUDUM, Newm., Zool., App. cxvi–cxvii; Masters, Cat. Col. Aust., No. 3444.

I have not seen the original description of this genus and species, but Lacordaire has reproduced † the generic description amongst other genera unknown to him. In many Australian collections a species, which is quite common on the northern rivers of New South Wales,‡ is standing under this name; and correctly so as it transpires. This species, however, belongs to the *Oedemeridae*; not having seen the specific description, and being doubtful as to the correctness of the name, I sent a specimen of the species to Mr. G. C. Champion, asking him to have it compared with the type§; this he has kindly done and has

* Silb., Rev., IV, 1836, p. 18.
† Gen. Coleop., IV, p. 414.
‡ The type was from the Richmond or Clarence River.
§ In the British Museum.

written me as follows: "You are quite right about the *Agasma*; it is of course an Oedemerid, though Newman calls it pentamerous.* The genus in the British Museum is correctly placed. I do not suppose Lacordaire knew it, except from description."

* The tarsi are quite plainly 5-5-4.

Explanation of Plates II—VI.

[*See Explanation facing the* Plates.]